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NAC Speakers Review Progress Made in Broad Research, Better Public Relations

By DONALD NETH and W. E. LINGREN
Croplife Editorial Staff

HOLLYWOOD, FLA.—A full program embracing practically every phase of the manufacturing, distribution, marketing and public relations aspects of the agricultural chemicals business marked the annual spring meeting of the National Agricultural Chemicals Assn. which met at the Hollywood Beach Hotel here March 14-16.

Speakers represented the industry educational institutions and state and federal agencies concerned with the application and control of chemicals used in agriculture.

Chairman of the opening session on March 14 was M. C. Van Horn, Fasco Division, Florida Agricultural Supply Co., Jacksonville, chairman of the program committee. In his opening remarks, he reviewed the progress made in Florida agriculture in recent years.

J. Wayne Reitz, president of the University of Florida, told the meeting that the problem of supplying the

(Continued on page 20)

CONVENTION COVERAGE

Croplife was represented at the Hollywood Beach meeting of NAC by Donald Neth and Wilfred E. Lingren, both of the Minneapolis office.

Six-Point Safety Promotion Program Suggested by NAC President at Spring Meeting

HOLLYWOOD, FLA.—A six-point safety promotion program sponsored by the National Agricultural Chemicals Assn., was outlined as the spring meeting of the NAC got underway March 14.

W. W. Allen, Dow Chemical Co., Midland, Mich., president of the association, told the group that the meeting should be dedicated to a theme of "Read the label and follow directions."

The growth of the industry in the past decade, along with the publicity received by the Miller Pesticide Amendment, has resulted in a broader understanding of the industry than ever before, Mr. Allen said. Now is the time for manufacturers to renew their appeal to their customers to read the label and follow directions, he said.

"Teaching our users to read our labels is the beginning and the end of most of our problems," Mr. Allen said.

He outlined the six point safety promotion program which the industry could use profitably. One, he said, is the use of radio platters containing talks by experts which are made available to radio stations. Indications are that each record will be used by 500 stations, Mr. Allen said.

A kit of safety materials is being made available to NAC members; a clinical memorandum on economic poisons, and a medical display to tell the story of safety at meetings of medical associations.

Teamwork with the National Safety Council was stressed, as was the value of publicity. Mr. Allen also said that this is the time for new emphasis on dealer and jobber education.

The dealer and jobbers should be more than just vendors, he said. They should be competent advisers to the farmer.

Mr. Allen said that it was time for the industry to shift its public relations effort from the defensive to hard, positive selling. The story that should be told to the American people is two-fold, he said.

One part of that story is that pesticides can be used with safety, if users read the label and follow directions. The other part is that proper use of pesticides will bring profits to growers, savings to consumers and a better supply of food to the store.

Pointing to improved public health in recent years, Mr. Allen claimed some credit for the industry because of its contributions to food production.

"I do not think it is unreasonable to point out," he said, "a likely relationship between agricultural chemical progress and better food supply . . . and in turn, a direct relationship between better food supply and human longevity."

Looking in the direction of tomorrow's research, Mr. Allen predicted that new, safe chemicals would accomplish many tasks for the farmer including increased yield. He said that chemicals may be found which will improve the compositional quality of agricultural products without the risk of leaving harmful residues.

"For example," he said, "there is evidence that the protein content of wheat can be increased, and it seems entirely possible that chemical treatments can be used to increase the ability of a cane plant to produce a higher concentration of sugar."

Construction Soon To Begin on New Nitrogen Facility

Continental Oil and
Cities Service Plan
\$12 Million Plant

NEW YORK—Plans for construction of an estimated \$12,500,000 petrochemical plant at Lake Charles, La., to produce anhydrous ammonia for use primarily as a fertilizer have been announced by F. M. Simpson, vice president and general manager of Petroleum Chemicals, Inc., which is owned jointly by Continental Oil Company and Cities Service Company.

The plant will produce 100,000 tons of ammonia annually, Mr. Simpson said, and will employ approximately 100 men. Construction will start within the next few weeks and is scheduled for completion in the fall of 1957.

By-product hydrogen, the principal raw material for ammonia, will be supplied to the new installation by the Continental and Cities Service refineries near Lake Charles. Nitrogen will be extracted from the atmosphere.

The major portion of the ammonia will be used for fertilizer.

(Continued on page 21)

Merger Proposed For Stauffer and West End Chemical

SAN FRANCISCO—West End Chemical Company and Stauffer Chemical Company have announced that representatives of their respective boards of directors are giving active consideration to a proposal for merger of West End with Stauffer. Under the terms of the proposal, it is contemplated that West End Chemical Company will continue to operate under its present management as an autonomous division of Stauffer Chemical Company.

Orders Procurement of Fertilizer for Korea

WASHINGTON, D.C.—The International Cooperation Administration last week issued a procurement authorization to the Republic of Korea for the purchase on a world-wide supply basis, of \$9,975,000 of fertilizer materials.

Contracting period for this procurement is slated for March 9, 1956, through July 31. Delivery is to be completed not later than October 10, 1956.

The procurement is broken down in the following amounts, into three major product groups—nitrogenous fertilizers \$7,800,000, phosphatic fertilizers \$1,800,000, and potassium chloride \$375,000.

Soil Bank Legislation Delay Making Act Ineffective for 1956 Season, Experts Believe

By JOHN CIPPERLY

Croplife Washington Correspondent

WASHINGTON, D.C.—The long delay (some here describe it as actually a filibuster on the part of the price support partisans) on the part of Congress in enacting the farm conservation act with its soil bank provisions, is seen as rendering that particular provision as comparatively ineffective for the 1956 crop year.

They say that the most optimistic outlook of a law by not later than March 28 will be so late that even farmers are willing to comply with the soil bank provisions, they will be unable to do so either as to the acreage reserve provisions or those of the conservation reserve program. Added to these comments coming from farm officials is the fact that while the act has its mechanism geared and ready to go once it gets the green

light, the problem of instructing many thousands of farmers in the operations of both phases of the soil bank will require much more time than will be available.

It is noted that in many parts of the nation, spring planting is already well advanced.

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Robert U. Haslanger

Escambia Bay Corp. Names R. Haslanger Vice President

CAMBRIDGE, MASS. — Robert U. Haslanger has been elected vice president and general manager of Escambia Bay Chemical Corporation, it was announced by Kenneth G. Donald, president.

Escambia Bay recently dedicated a new plant at Pensacola, Florida, for production of ammonia, ammonium nitrate, and nitrogen fertilizer solutions. Construction is now under way at the same site for a 30,000,000 pound polyvinyl chloride resin plant to be completed by the fourth quarter of this year.

Mr. Haslanger is a graduate of the University of Wisconsin, and for a number of years he was with Monsanto Chemical Company where he held various posts in research, product development, and sales.

More recently, Mr. Haslanger was with Stauffer Chemical Company as assistant to the president and director of sales, Industrial Chemicals. Here he was an active member of the management committee, research advisory committee, and development advisory committee.

New England Course Set for March 26-30

AMHERST, MASS. — Information on spraying, insecticides, disease and pest control are among the subjects for discussion at a week-long program set up for 250 tree wardens, arborists and electric linemen March 26-30. The conference is sponsored by the Massachusetts Tree Wardens' and Foresters' Assn. in cooperation with the Electric Lines Club of New England and the Massachusetts Arborists Assn. and the university.

Topics listed include "Insects and Insecticides," William Becker, university entomologist; "Plant Care," J. L. Beasley, Massachusetts Department of Public Works, Boston; "Foliar Fertilizing," E. C. Roberts, university agronomist; "Town Forests," R. B. Parmenter, university extension forester; "Tree Planting on New Real Estate," A. W. Bolcourt, university extension horticulturist; "Tree Diseases," J. S. Boyce, Yale University forest pathologist, New Haven, Conn., and "Flood Problems on the Connecticut River," E. R. Foster, director, Connecticut Watershed Council.

Other topics include "Control of Tree Growth," Karl Sax, botanist, Harvard University; "Japanese Beetle Control," E. H. Wheeler, university extension entomologist, and "Mosquito Control," Robert Armstrong, Eastern Middlesex Mosquito Control Assn.

Need for Research on Application Equipment Pointed Out by USDA

WASHINGTON, D.C. — Work to improve present farm machinery for applying pesticides, fertilizers, and weed-control chemicals ranked high among urgent research needs in the field of agricultural engineering cited by the U.S. Department of Agriculture's Farm and Home Equipment and Structures Advisory Committee at its two-day meeting in Washington which ended March 1.

Established under the Research and Marketing Act of 1946, this committee is one of a number of functional and commodity advisory groups that regularly review the Department's research and marketing programs and advise the Secretary of Agriculture concerning problems that should receive attention in their respective fields of interest.

Research proposals for work on farm and home equipment and structures were considered by the committee in five categories. Other proposals given high priority came under categories of field operations, farmstead operations, farm structures and equipment, construction materials and methods, and economic studies.

M. F. Kernkamp Named Assistant Director, Minnesota Station

ST. PAUL, MINN. — Milton F. Kernkamp was named assistant director of the University of Minnesota Agricultural Experiment Station and professor by the University's Board of Regents on March 9.

Dr. Kernkamp had been a member of the University staff from 1935 to 1941 and from 1946 to the present, serving as associate professor of plant pathology since 1949. He has done teaching and research in diseases of legumes and grasses.

In his new position, the assistant director will aid H. J. Sloan, director of the Experiment Station, with such duties as planning and checking research projects, coordinating research between the various departments and branch experiment stations of the Institute of Agriculture, and working with industry, private foundations and the federal government on research grants.

Dr. Kernkamp is a native of St. Paul and received his B.S. degree in 1934, his M.S. in 1938 and his Ph.D. in 1941 from the University of Minnesota.

Following graduation he worked briefly for both the University of Minnesota and Texas A&M college as an assistant in plant pathology in 1935. In 1936 he became an instructor in plant pathology on the University staff, remaining with the University until 1941.

Vegetable Advisory Group Stresses Research

WASHINGTON—The major importance to the nation of expanded research in the field of vegetable crops was emphasized by the U.S. Department of Agriculture Vegetable Research and Marketing Advisory Committee at its recent annual meeting in New Orleans.

In the field of production the committee recommended expanded research on pesticide residues and on nematode control; substantial new research on biological control of soil-borne diseases, including studies of the effects of various production practices upon the micro-population (bacteria and other organisms) of the soil, and expanded work on breeding disease- and insect-resistant vegetable varieties.

Date Set for 1956 Convention of California Group

SAN MARINO, CAL.—The Thirty Third Annual Convention of the California Fertilizer Association will be held at the del Coronado Hotel, Coronado, Cal., on Sunday, Monday, and Tuesday, November 11, 12, and 13, 1956, according to Sidney H. Bierly, CFA executive secretary. William E. Snyder of Los Angeles, president of the association, said that 600 persons are expected to attend from all over the United States and Canada.

Snyder stated that a good balance will be maintained between the business sessions and recreation with emphasis on entertainment for the men and their ladies who will attend.

The business session will be brief, but of importance to the industry, and will feature outstanding national authorities. The program committee in charge of arrangements is made up as follows—Frank Seoville, Chula Vista, chairman; Howard Conley, Los Angeles; and Thomas H. Lathe, Los Angeles.

Entertainment for the annual banquet and plans for the men's golf and bowling tournaments will be the responsibility of this entertainment committee: John Garretson, Chula Vista, chairman; Rod Taft, Los Angeles; and John Williams, Chula Vista.

Plans for the ladies' events will be developed by Mrs. John Garretson, Chula Vista, chairman of the ladies' committee, assisted by Mrs. Jack Baker and Mrs. Earle J. Shaw, both of Los Angeles.

Texas Station Reports Good Results from DDT-Toxaphene Combination

COLLEGE STATION, TEXAS — Application of a combination of DDT and toxaphene has shown good results in the production of vetch seed, according to recent research at Texas A&M College.

Neal M. Randolph of the department of entomology conducted the research near Terrell, Texas, during the 1955 season. The results indicated excellent control of aphids, armyworms and cutworms in vetch, and also showed the combination to be less harmful to honey bees, he reports.

The material was applied at the rate of 6 gal. spray material an acre, at 60 lb. per sq. in. (In terms of technical material, 3.0 lb. toxaphene-DDT per acre.)

In check areas, only 152 lb. seed were produced per acre. From areas where the combination pesticide was applied, the yield was 424 lb.

In the control of pea aphids, the toxaphene-DDT combination scored 99.7% two days after application; 99.9% nine days after; 99.6% 15 days following, and 94.5% three weeks after.

In comparison to the control area, the percentage of reduction of armyworms and cutworms credited to the toxaphene-DDT combination were: 79.5% two days after application; 99.0% nine days after; 100% 15 days following and after three weeks, the percentage was still 100.

The toxaphene-DDT combination was superior in these respects to a number of other materials used separately in the tests, the college reports.

JOINS CALIFORNIA FIRM
LOS ANGELES, CAL.—Bernard F. Nelson has joined American Potash & Chemical Corporation as California area representative for the company's Aerosol and Refrigeration Division, it has been announced by George Schnier, sales manager of the division.



Roy Roughton

Roy Roughton Becomes Sales Representative in IMC Potash Division

CHICAGO—The Potash Division of International Minerals & Chemical Corp. has appointed Roy Roughton sales representative for agricultural potash salts in the Chicago district. Nelson White, vice president in charge of the division, has announced Mr. Roughton will be responsible for agricultural sales of the division throughout the west north-central area of the Midwest and will make his headquarters in International's Chicago offices.

He has had 10 years' sales experience in the feed industry and holds a degree in business administration from Coe College, Cedar Rapids, Iowa. During World War II he served with the American Infantry Division participating in major campaigns in the Southwest Pacific.

Dow Purchases Patents For Freeze-Resistant Herbicidal Chemicals

MIDLAND, MICH. — The Dow Chemical Company has purchased number of patents which claim certain herbicidal compositions resistant to freezing and crystallization at low temperatures, it is announced by W. Britton, manager of Dow's agricultural chemicals.

The patents involved, Nos. 2,721,133 through 2,721,133, issued in the name of John C. R. Warren, were formerly owned by the U.S. Rubber Co.

Under the patents, Dow, pioneer producer of weed and brush killers, markets herbicidal formulations containing mixtures of several ester compounds of 2,4 dichlorophenoxyacetic acid (2,4-D) and 2,4,5 trichlorophenoxyacetic acid (2,4,5-T) as active ingredients.

The patented mixtures, which involve the ethyl, isopropyl, isobutyl, normal butyl, and secondary butyl esters of 2,4-D and 2,4,5-T, have been found to exhibit much lower freezing points than do the various individual esters. The combinations of the esters have shown an unusually high resistance to freezing, even under extremely cold, winter-time conditions common to the northern region of the United States and Canada.

Three Dow products that fall within the scope of the newly purchased patents are butyl 2,4 dichlorophenoxyacetate, Brush Killer 50-50, Esteron 76E. Two others, Dow Butyl 265 and Dow Butyl 400, will appear on the market soon, the company says.

Resistance to freezing is especially important in herbicidal compositions since low temperatures are often encountered in transportation and storage of the formulations.

Irrigation Even in H

RICHMOND, MICH.—A new farmer, a newco... areas of the Ea... setting establishe... production and a... finding farming to... it was reported a... here. The crowd... heard talks on... scientists and farm... experience with c...

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Irrigation Lowers Unit Production Cost Even in Humid Regions, Missourians Told

RICHMOND, MO.—The irrigation farmer, a newcomer to the humid areas of the Eastern U.S., is upsetting established ideas about farm production and at the same time is finding farming to be more profitable, it was reported at a recent meeting here. The crowd of some 400 persons heard talks on irrigation by both scientists and farmers who have had experience with controlled moisture.

The irrigation farmer, as described by Dr. G. G. Williams, manager of irrigation research and development for Olin Mathieson Chemical Corp., is "an excellent farm manager who controls all the plant growth factors and irrigates his field when the soil moisture content indicates the need for it."

Dr. Williams asserted, "There is a big difference between this technique and that of the supplemental irrigator. The latter has a tendency to listen to the weather report and to stop irrigating when a cloud appears on the horizon. The supplemental irrigator waits until his crop is injured before starting the irrigation pump."

How serious this may be was told by Dr. Arnold Klemme, assistant director of the experiment station at the University of Missouri at Columbia. Having recent extensive experience in developing an irrigation program for a large acreage in Southwest Texas, Dr. Klemme pointed out, "Growing plants are largely water. A deficiency of moisture anytime during the growing period permanently injures the plant. It never fully recovers."

Both Dr. Klemme and Dr. Williams pointed out that the successful "irrigation farmer" keeps production factors at an optimum. Proper drainage, adequate amounts of fertilizer, proper plant populations, disease and insect control, and other good management practices, they said, become musts.

"Without irrigation to help him control soil moisture, the farmer is reluctant to plant enough seed and to fertilize for maximum production, since in many unpredictable years the rains will not come when the crops need moisture. With an irrigated agriculture, it is possible to fertilize, plant and plan with confidence," Dr. Williams said.

The first effect of irrigation, he pointed out, is to increase yields and thus to increase the farmer's income. The effect on profit can be considerable, since unit costs are lowered. Just as important from the standpoint of the community, irrigation helps to stabilize farm income by removing the wide fluctuations in crop yield from year to year.

Dr. Williams cited the San Joaquin and Sacramento Valleys of California as areas whose economies have been changed by irrigation. "Whole areas in the east will benefit similarly where irrigation becomes commonplace," he predicted.

"In 1930 there were no irrigated pastures to speak of in the foothills of the San Joaquin and Sacramento Valleys," said Dr. Williams. "Since then approaching a million acres of irrigated pastures have come into being in these shallow-soiled areas. They were formerly planted to barley and several hundred acres were required to support one family. Today, sheep, beef cattle and dairy cattle graze on irrigated Ladino clover pastures and many dairy farmers make a good living on as little as 50 acres."

Dr. Klemme said that irrigation not only stabilizes yields, but permits the shift to higher valued crops, provides more nutritious livestock feed, and makes double cropping

workable in humid climates such as that of Missouri.

Prof. R. P. Beasley of the University of Missouri Department of Agricultural Engineering told the meeting about numerous research projects on irrigation that the University has under way. Major rivers of the state have sufficient flow to be used for irrigation and many smaller streams are capable of taking care of the needs of a limited area with proper reservoirs to store water during periods of heavy run-off.

The scientists' conclusions were borne out by the experiences of two farmers who reported their results.

J. W. Bennett of Lutesville, Mo., said he pocketed \$2,885 additional profits on 23 acres of corn last year because he both fertilized and irri-

gated the land. He figured his profit after allowing for depreciation on his sprinkler irrigation system which cost him \$2,524 and allowing for such other additional costs as extra seed, fuel and labor.

On 40-bushel corn land in the foothills of the Ozarks, Mr. Bennett produced 99 bu. an acre with heavy fertilization. Fertilization plus irrigation, however, produced 197 bu. an acre.

Tom Graham, manager of 4,000 acres of farmland near Washington, Ind., reported equally satisfactory results on irrigated pastures. He said that by calculating irrigated pasture as part of the total ration, milk production was increased by 50 lb. fat per cow and the cost of grain was decreased 50%.

Host at the meeting and a press luncheon which preceded it, was Newton C. Hamacher, head of the Hamacher Mill Company, Richmond. Jack Jackson, director of agriculture,

KCMO Broadcasting Co., Kansas City, was chairman of the meeting. Pumps, piping and other equipment were displayed outside the meeting hall at Richmond high school.

The meeting was sponsored jointly by Hamacher's Mill of Richmond, and Olin Mathieson Chemical corp., a major distributor of irrigation systems.

Bean Fertilization Results Released

PULLMAN, WASH. — The latest results of the State College of Washington's outlying testing of beans in the Columbia Basin, have been released.

A. I. Dow, extension specialist in outlying testing, recommends in the report that farmers on new land in the Columbia Basin apply 80 to 120 lb. of nitrogen, 40 lb. of phosphorus (P₂O₅) and 10 lb. of zinc for best returns from their bean crops.

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Rising Farm Costs Causing Changes in Farming Methods

WASHINGTON — Sharply increasing tax payments by farmers are the largest factor contributing to the higher farm cost situation, according to an official report of the U.S. Department of Agriculture. Measuring from a 1947-49 base, USDA reports that all cost factors are up approximately 11%. The only exceptions to this trend are found in farm produced commodities such as feed grains, seed and livestock where costs are lower this year.

At the Agriculture Outlook Conference in Washington recently USDA economists reported that they expect over-all farming costs in 1956 to average about the same as in 1955.

Dr. Kenneth L. Bachman, economist in USDA's Agricultural Research Service, summarized cost surveys that

show probable increases this year in costs of tractors, farm machinery and some building and fencing materials; a 5% increase in taxes on real estate and personal property, and a slight rise in wage rates of hired farm labor.

Prices of feed can be expected to average somewhat lower, the economist said, and seed prices are also anticipated to be lower. Expected to be about the same will be costs of feeder and replacement livestock and fertilizer costs per pound.

In making its report on the farm cost situation, USDA notes that many farm units have been able to offset these cost increases through changes in farming methods. Expenditures for hired labor are falling behind farm labor wage rates, whereas expenditures for feed, seed and livestock have

increased more rapidly than their respective cost rates.

Using the 1940-1955 years as a yardstick, USDA supplies a broad picture of the extent and rapidity of farm mechanization. Use of farm tractors has grown from a reported 1.5 million units in 1940 to 4.8 million this year. Farm trucks have more than doubled in the same period mounting from 1 million in 1940 to 2.8 million this year.

Milking machines in use on farms showed a sensational climb from 175,000 in 1940 to more than 740,000 in 1955.

Similarly, use of combines has grown from 190,000 to nearly one million in this current year. Likewise, the mechanical corn picker has increased nearly sixfold in usage as USDA reports 660,000 on farms this year.

One of the phenomena of the current farm problem is that of farm real estate values which for most areas were at or near their all time peaks in mid-1955 while all other

items used in farm production except fertilizer and motor supplies have increased more relatively since 1910-14 than farm real estate.

A factor in the strength of farm real estate is noted by USDA in the strong demand for additional acreage to maximize the efficiency of farm machinery. Of all farm land sold in 1954-55, farmers as a group were the largest purchasers, constituting two-thirds of all buyers, and nearly one-third of all purchasers bought for farm enlargement. This enlargement influence was the greatest in winter wheat and corn belt areas, reflecting the influence of widening mechanization.

In analyzing costs and returns in 21 different farming areas, USDA reports per unit cost of production was higher in all of the 21 types in 1955 than in 1947-49 ranging from a 1% increase on northeastern dairy farms and northwestern wheat-pea farms to 40% increase in southern Piedmont cotton farms. This dissimilarity between cost rates is attributed by USDA to increased crop yields and over-all efficiency. In the case of northwestern wheat-pea farms, the per unit cost was held down through a 39% increase in crop yield as the over-all cost rates advanced 19%.

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- 2,4,5-T Brush Killers
- Grain Fumigants

and many other chemicals that help farmers, gardeners, cattlemen and orchardists.

More Marketing Services Cuts Farmer's Share of Food Dollar

WASHINGTON — A special U.S. Department of Agriculture report on the marketing costs of foods has been released, summarizing recent trends in food marketing costs and in the distribution of the consumer's food dollar.

The study follows the recent expression of concern covering these costs by Ezra Taft Benson, secretary of agriculture.

Secretary Benson noted that the spread between farm and retail prices of food has increased 83% since 1945. This, the report says, has been a primary factor in the decline in the farmer's share of the consumer's retail food dollar from a record high of 53% in 1945 to an average of 41% in 1955.

The report says the spread has widened primarily because of the substantial increase in all costs of performing marketing services since 1945. Wage rates are up almost 100% over 1945, freight rates and other costs—packaging material, containers, fuel, equipment, rents, etc.—are up about two-thirds. State and local property taxes have increased substantially. Actual labor costs have not increased as fast as wage rates, because output per man-hour has increased, according to the report.

California Fertilizer Conference Planned

SAN MARINO, CAL.—The fourth annual California Fertilizer Conference, sponsored by the soil improvement committee of the California Fertilizer Assn., will be held on the campus of the Citrus Experiment Station, University of California, Riverside, April 16-17 the association has announced.

John H. Nelson, Stockton, chairman of the sub-committee in charge of arrangements, said that an outstanding program is now being developed. He pointed out that it will be of interest and educational value to fertilizer manufacturers, salesmen and dealers; to farm organizations and their members; to the research and instruction personnel of the University of California, the several colleges and high schools; and to the staffs of the State and U.S. Departments of Agriculture. He said the University of California is giving full cooperation to the program.

Printed programs will be sent all on the association's mailing list well in advance of the conference.

Pennsalt Debenture Part of E

PHILADELPHIA — Pennsalt Mfg. Co. has a statement with the Exchange Commission covering the sale of a new issue of debentures, principal underwritten by Kidder, Peabody & Co. The statement says that the debentures will be sold at a price of 100% of face value.

Net proceeds from the sale of the debentures will be used for the general funds of the company, for the expansion, development and improvement program. Pennsalt contemplates a program of approximately \$10,000,000 over the next five years.

The program, to be carried out in the firm's plants, provides for the installation of new machinery and processes, as well as the expansion of production facilities and the installation of new machinery and processes.

Capital for this program is provided from the company's retained earnings and to be used for the expansion of operations. The company has a total of \$15,000,000 to be used for the public sale of the debentures.

Pennsalt's research and development center is located at its laboratory in Painesville, Ohio. Its research and development program is approximately 40% of the company's total budget. This budget is directed toward the conversion of chemicals, particularly chlorine, into intermediate products.

Already under way is the expansion of the company's production facilities at Tacoma, Wash., and the production of industrial chemicals at Calvert City, Ky., Wyandotte, Mich., and the production of calcium hypochlorite.

To further strengthen its position, the company is planning to place in operation a new plant in western Kentucky with the Hooker Chemical Company, is developing a new facility on Great Salt Lake.

Dates Set for Mechanization

MEMPHIS — The 1956 Cotton Mechanization Conference will be held at the University of Tennessee, Knoxville, on April 24-25, the National Cotton Council has announced. The council, in cooperation with the University of Georgia, is sponsoring the conference. The U.S. Department of Agriculture, through its various groups, this year will emphasize the urgent need for cotton production mechanization.

The Atlanta Biltingham Conference for the cotton industry is scheduled for the second day of the conference. The conference will be held at the University of Georgia, Experiment Station, Ga., for the modern cotton production techniques. The conference is being held across the country and a workshop session will be held.

Pennsalt Proposes Debenture Sale as Part of Expansion

PHILADELPHIA — Pennsylvania Salt Mfg. Co. has filed a registration statement with the Securities and Exchange Commission in Washington, D.C., covering the proposed offering of a new issue of \$15 million sinking rate debentures, due April 1, 1981. Principal underwriter of the issue will be Kidder, Peabody & Co. Interest rate and offering price of the new debentures will be filed by amendment.

Net proceeds from the sale of the debentures will be added to the general funds of the company and used by Pennsalt in connection with an expansion, development and improvement program under which Pennsalt contemplates the expenditure of approximately \$55,000,000 over the next five years.

The program, the most ambitious one in the firm's 106-year history, provides for the introduction of products and processes new to the company, as well as plans for the expansion of production of present products, the installation of more efficient facilities and the improvement of existing processes.

Capital for this program will be provided from funds presently on hand and to be generated through future operations, supplemented by \$15,000,000 to be derived from the public sale of the debentures. No additional financing is presently contemplated.

Pennsalt's research activities are centered at its laboratories at White Marsh (near Philadelphia), Pennsylvania. Its research budget for 1956 is approximately 40% bigger than for the previous year. A large portion of this budget is directed toward the increased conversion of Pennsalt's basic chemicals, particularly fluorine and chlorine, into intermediate and end products.

Already under construction as part of Pennsalt's growth program are: expansion of anhydrous ammonia production at Portland, Ore.; added chlorine production facilities at Tacoma, Wash.; a unit for production of industrial chemicals at Calvert City, Ky. and facilities at Wyandotte, Mich. for making calcium hypochlorite.

To further strengthen its raw materials position, the company expects soon to place in operation new fluor-spar mining and milling facilities in western Kentucky and in cooperation with the Hooker Electrochemical Company, is developing a solar salt facility on Great Salt Lake, Utah.

Dates Set for Cotton Mechanization Conference

MEMPHIS—The 10th annual Belt-wide Cotton Mechanization Conference will be held in Atlanta, Aug. 22-24, the National Cotton Council has announced. Sponsored by the Council, in cooperation with the University of Georgia, the farm equipment industry, farm organizations, U.S. Department of Agriculture, and other groups, this year's meeting will emphasize the urgent need for lowering cotton production costs and pinpoint mechanization's role in this effort.

The Atlanta Biltmore will be headquarters for the conference. Discussions built around the meeting's objectives are scheduled through noon of the second day, Aug. 23. In the afternoon conferees will journey to Experiment, Ga., for a demonstration of modern cotton production machinery and techniques. On August 24, engineers engaged in mechanization research across the Cotton Belt will hold a workshop session at the Biltmore.

CFA Makes Grant for Fertilizer Research at Riverside Station

SAN MARINO, CAL. — Financial assistance to the fertilizer research program at the Citrus Experiment Station, University of California, Riverside, and establishment of a revolving student loan fund on the Kellogg-Voorhis campus of the California State Polytechnic College, San Dimas, are assured as the result of action taken at a recent meeting of the Soil Improvement Committee, California Fertilizer Assn.

M. E. McCollam, committee chairman, reported that the sum of \$4,000 was set aside as the nucleus for a fund large enough to provide for an addition of 24 lysimeters to the controlled research project which has been one of the Riverside Station activities under Dr. H. C. Chapman's

direction for the past 20 years.

The entire cost of the new project will be about \$12,000, Mr. McCollam reported, and it is hoped that this committee action will prompt other interests who will benefit to subscribe the balance of the needed funds. He said the proposed expanded project will provide for highly desirable basic studies of problems involving leaching losses and movement in the soil of plant food elements, chemical, physical, and biological changes, and productivity trends of varying soils under controlled lysimeter conditions. It was pointed out that the university budget will provide for adequate technical man-power, but nothing at all for the necessary equipment.

Mr. McCollam said that another allocation of committee funds was made to provide for the purchase of a new tractor, complete with fertilizer application equipment, to be donated to the university's Department of Vege-

table Crops at Riverside Station, which has recently established a branch there under the direction of Dr. O. E. Lorenz, vice chairman of the department.

A revolving loan fund was made available to the students of the San Dimas campus of California State Polytechnic College, in the amount of \$500 on a five-year loan basis.

Washington Sales

OLYMPIA, WASH.—Fertilizer sales in Washington during the last half of 1955 totaled 48,749 tons, according to the State Department of Agriculture. This included 44,172 tons of materials and 4,577 tons of mixed goods.

HEADS CROP GROUP

LARAMIE, WYO.—Ben C. Kohrs, Douglas, has been named president of the Wyoming Crop Improvement Assn.

HOW UNION BAG BUILDS MORE BUSINESS FOR THE FERTILIZER INDUSTRY

"I insist on fertilizer in Multiwall bags," says world champion corn grower

Willard C. Kirk, farmer, Jeffersonville, Ohio

"Science rules on my farm," says Mr. Kirk, winner of many "ten ears" awards and trophies. "I rotate strictly so as not to rob my soil—soybeans and oats, one year each; pasture, two years; then corn, one year. I use lots of fertilizer, and prefer it packed in 80-lb. Multiwalls. I find Multiwalls easy to handle and store, and to open and empty completely. Also, fertilizer does not sift out of these paper bags."

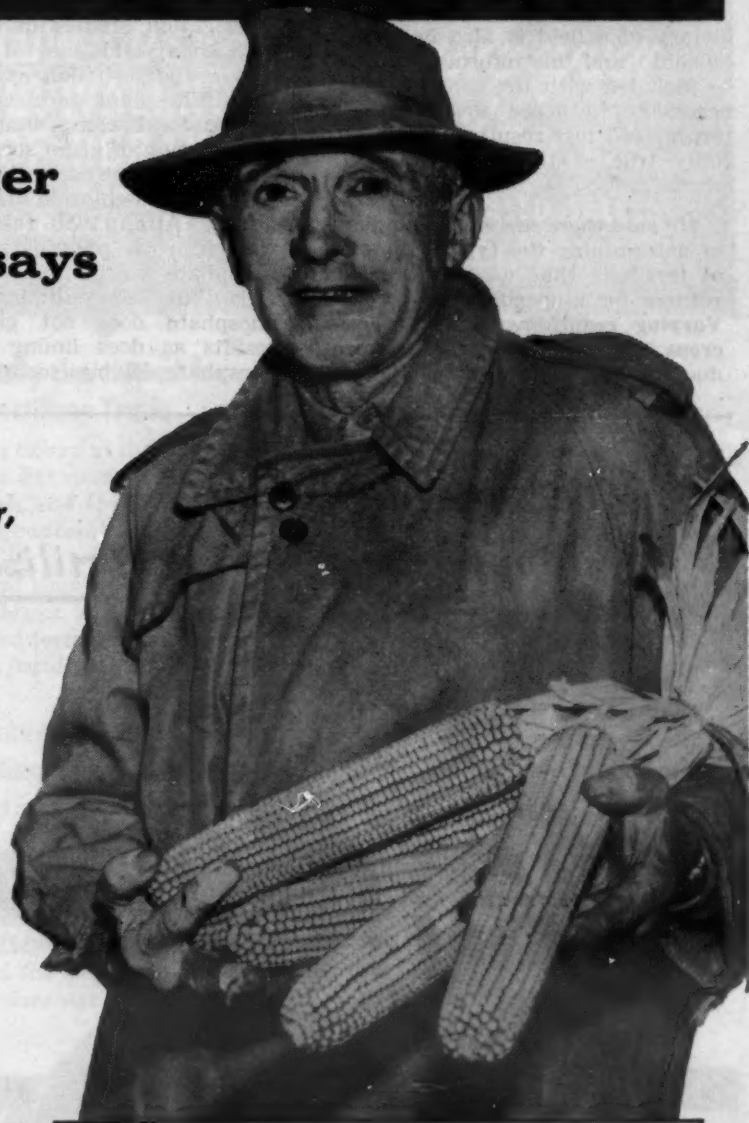
Union Bag fosters science on the farm

Many farmers, like Mr. Kirk, get tips on fertilizer use through the information program of Union Bag & Paper Corporation, which provides basic data for newspapers, magazines, and radio and television stations.

Union's country-wide educational program is designed to increase fertilizer consumption. More and more of the output of this growing industry is being marketed in Union Multiwall bags.

As farmer and dealer preference for fertilizer-in-multiwalls continues to grow, so does manufacturers' preference for Union Multiwalls.

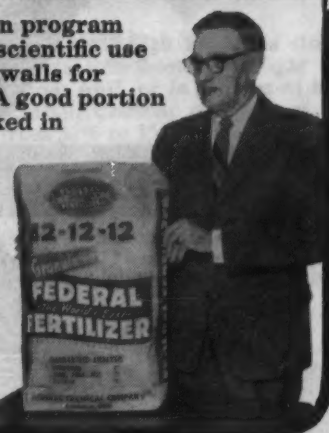
Are you completely posted on all the recent advances in multiwall packaging of fertilizer? We will be glad to show you some of the new Union sacks the industry is now using so successfully.



"Union Bag's information program will help farmers in the scientific use of fertilizer. Union Multiwalls for fertilizer help them too. A good portion of our production is packed in Union Multiwalls."

Mr. John R. Sargent,
Vice President
in Charge of Sales,
Federal Chemical Company,
Louisville, Ky.

Federal Chemical Company supplies America's "breadbasket" with fertilizer, much of it packed in Union Multiwall bags.



UNION Multiwall Bags



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Importance of Fertilizer in Beating Farm Price Squeeze Stressed at Oklahoma Meeting

STILLWATER, OKLA.—One good way to overcome part of the cost-price squeeze most farmers are now undergoing is to increase yields and profits through proper fertilization practices. This was the primary theme of talks by agronomists, soil conservationists and agricultural economists who spoke at the recent 11th annual Crops, Soils and Fertilizers Conference on the Oklahoma A&M campus.

Emphasizing the importance of correct fertilizer practices, Dr. J. Q. Lynd, Oklahoma A&M agronomist, said one of the first steps toward higher farm income through fertilization is obtaining a correct soil analysis. A soil test is only as good as the sample which has been brought to the laboratory, he told over 200 farmers, ranchers, fertilizer dealers and agricultural leaders on hand for the conference.

"Previous cropping and fertilizer history of a field is also important," he said, "and this information should be included with the sample, as it is necessary in order to properly interpret soil test results. This is especially true of the nitrogen requirements."

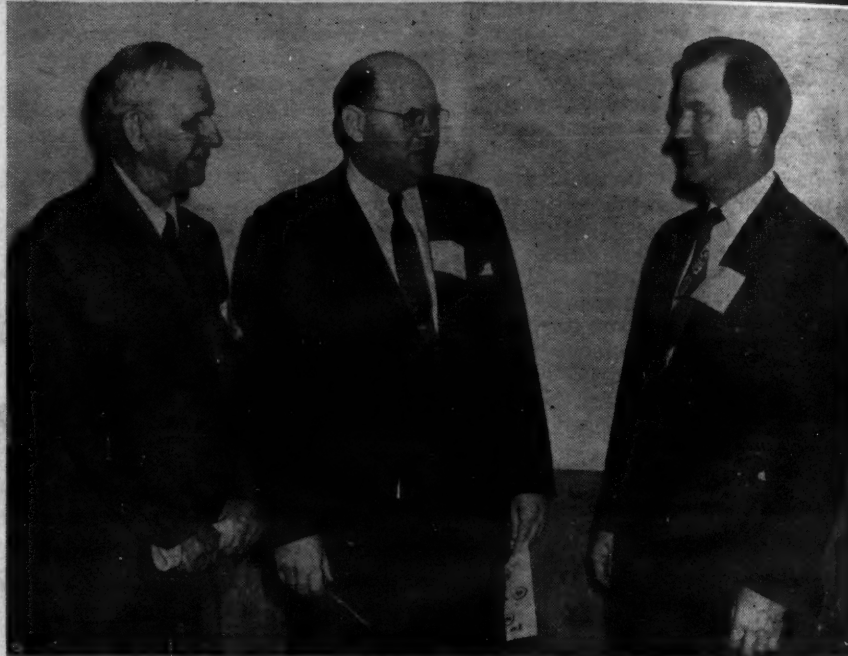
He said there are no simple ways of determining the type or amount of fertilizer that will give highest returns for a specific field or crop. Varying requirements of different crops and wide ranges in the production capabilities of soils affect

these factors. Deep soils in good condition have an advantage for increased profitable returns from fertilizers because of their higher production potential, he said.

Some of the more important considerations determining the kind, amount and methods of applying fertilizer include the individual farming system and the farmers' limitations in capital and equipment. If resources are limited the farmer should use the fertilizer materials that give the greatest return from a limited investment.

Stressing the advantages of proper application, Dr. Lynd said broadcasting fertilizers for establishing stands of grasses and legumes is inefficient. Banded fertilizer two to three inches below or to one side of the seed proved best in tests in Oklahoma. It also minimizes weed growth between seedling rows, he said.

Irrigation studies in the state on high corn yields, use of nitrogen by cotton and nutrition experiments on the alfalfa plant were reported at the conference. Findings to date show the germination of grain sorghum seed is sensitive to fertilizer salts, particularly potassium chloride and ammonium nitrate. Alfalfa will respond equally well to rock phosphate and superphosphate on certain strongly acid soils, but heavy liming with rock phosphate does not give as good results as does liming with superphosphate. High yields of corn can be



AT OKLAHOMA MEETING—Above are scenes from the recent Crops, Soils and Fertilizer Conference held at Oklahoma A&M College in Stillwater, Okla. In the top photo, left to right, are Dr. H. W. Bennett, Mississippi State College; Dr. W. H. Garman, National Plant Food Institute; Dr. John Green, Oklahoma A&M, and Dr. Randall Jones, Oklahoma A&M. Getting acquainted before the opening session, lower photo, are G. W. Dowell, Dowell-Tyler Fertilizer Co., Stillwater, Okla.; J. R. Huey, president of the American Seed Trade Assn., Chicago, and Dr. Marlowe Thorne, new head of the Oklahoma A&M agronomy department.

secured in very hot weather in Oklahoma if nitrogen fertilizer and water is plentiful. Corn fertilized for very high yields can not be allowed to suffer for more than one to two days for lack of water without loss of yield.

It was reported that tests on the effect of legume rotations, nitrogen fertilization and natural soil fertility on wheat production in Oklahoma have resulted in the following conclusions: the beneficial effect of a legume rotation on wheat production may be due to several factors acting alone or together. A crop like Austrian winter peas not only adds nitrogen, but also provides a favorable opportunity for the accumulation of more soil moisture when grown in a cropping system with wheat than will be present following a crop of cowpeas, sweet clover or alfalfa.

When soils are high in clay content, the beneficial effect of a legume on wheat production may be due principally to an improvement in soil structure.

The beneficial effect of superphosphate or a mixed fertilizer—applied in the row with wheat at the time of planting—on grain production is usually associated with a soil phosphorus deficiency. However, in western Oklahoma, row fertilization of wheat may be responsible during some seasons for the development of a deeper and larger root system as compared with the root system of unfertilized plants.

When late fall and winter rainfall is low, fertilized wheat plants may have a growth advantage over unfertilized plants which grow slowly and

never catch up with the fertilized plants the following year.

Consequently, an increase in wheat yield may be obtained from fertilization on soils that do not have a plant-nutrient deficiency for crop production during seasons when late summer and fall rainfall is unfavorable for early plant development.

Increased profits which farmers may expect from fertilizing were outlined by Gaylord Hanes, extension agronomist. Figures based on production and prices the past ten years show fertilized cotton has returned \$28.90 an acre more profits each year than unfertilized cotton. The difference for corn was \$19.01 per acre. Similar differences were noted on forage sorghums, peanuts and other Oklahoma crops.

Dr. W. H. Garman, chief of agronomic relations for the National Plant Food Institute, Washington, D.C., said the most important task at hand today is to help farmers adjust production to the market while maintaining net income. "To solve it means that fewer acres of land will have to be farmed and that each acre will have to return a greater income," he said, "this adds up to one thing—more efficient production."

Emphasizing the advantages of cooperation between industry, researchers and extension personnel, J. R. Huey, president of the American Seed

(Continued on page 23)

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Alexander ("Pete") McBride

U.S. Potash Names "Pete" McBride as Sales Representative

NEW YORK—U. S. Potash Co. has announced that Alexander "Pete" McBride will become a sales representative for the company in the midwestern territory recently vacated by John Fletcher. Mr. McBride at first will share this territory with Woody Wilson. Effective date of the appointment is March 26.

Mr. McBride is an alumnus of the Wharton School of the University of Pennsylvania and has served as a sales representative with a number of firms outside the plant food field. During the war he served in the Eighth Air Force and was awarded the Distinguished Flying Cross.

Phytopaths Report New Gains in Use of Antibiotics at Potomac Branch Meeting

BELTSVILLE, MD. — Dr. J. G. Leach of West Virginia University was elected president of the Potomac Division, American Phytopathological Society at its 13th annual meeting here, March 1-2. Dr. Kermit Kreitlow, U.S. Department of Agriculture, was elected vice president. Dr. L. O. Weaver, University of Maryland, and Dr. W. D. McClellan, USDA, were retained as secretary-treasurer and councilor, respectively.

Highlighting the some 30 technical papers presented before the plant pathologists were those spelling out new research successes with antibiotics against plant diseases. Dr. W. J. Zaumeyer, USDA, announced that he had used five relatively new antibiotics to control four fungus diseases of beans and lima beans in greenhouse experiments, and Dr. W. H. Preston, Jr., USDA, reported the control of bean rust in greenhouse tests with an antibiotic mixture.

Of the five antibiotics tested by Dr. Zaumeyer—Anisomycin, Mycostatin, Griseofulvin, Filipin, and Oligomycin—the last showed the widest effectiveness, preventing infection of beans with rust and anthracnose, and lima beans with downy mildew and stem anthracnose. Oligomycin was applied as a water-suspension spray containing 100 parts of antibiotic per million of water prior to inoculation of the plants with disease spores.

Anisomycin protected beans from rust and lima beans from downy mildew; Mycostatin protected beans from anthracnose, and to a lesser degree, from rust, and it prevented downy mildew infection of lima beans. Griseofulvin protected beans from rust. Filipin protected lima beans from downy mildew and gave partial protection to beans from anthracnose.

Of the five antibiotics, only one—Anisomycin—worked as a disease

Missouri Mixed Fertilizer Use Shows Decrease in 1955

COLUMBIA, MO.—Consumption of mixed fertilizer in Missouri during 1955 totaled 449,871 tons, compared with 517,244 tons in 1954. Consumption of materials, other than rock phosphate, totaled 109,270 tons, compared with 132,383 tons in 1954. Rock phosphate use was 212,415 tons, a gain from 121,748 tons in 1954.

The total 1955 consumption was 771,556 tons, up slightly from 771,375 tons in 1954.

Average composition of mixed fertilizers in 1955 was 7.88-14.19-11.19, or 33.3%, compared with 7.30-14.42-10.80 or 32.5% in 1954.

Mixed good sales in 1955 included 268,648 tons in the spring and 181,223 tons in the fall.

Rio Grande Farmers Starting Pecan Orchards

LAS CRUCES, N. M.—Farmers in the Upper Rio Grande Valley have tried various ways to fight back against dwindling water supplies, salty soil and cotton allotments. Alfalfa was not successful because of repeated damage by alfalfa aphids. Now several farmers are setting out pecan orchards to supplement the farm income.

Following the example of the Stahmann Farms that boasts the largest pecan grove in the nation, orchards of from 20 to 100 acres are beginning to appear in the valley.

One advantage of pecans, the owners say, is that they require less water and can be irrigated at times when other farm work is slack. At one time the nearest commercial pecan groves were found in Central Texas 400 miles to the Southeast.

eradicator. Rust was eradicated from bean plants treated with Anisomycin at 200 parts per million four days after inoculation with the disease fungus.

The antibiotic mixture, designated "F-17," was developed by a group of chemists at USDA's Northern Utilization Research Laboratory, Peoria, Ill. In greenhouse tests, a filtrate of the antibiotic mixture, diluted 16 times, protected beans from rust. When used without dilution, the filtrate eradicated rust when applied to plants four days after infection.

Both Drs. Zaumeyer and Preston consider results with these materials to be "promising," but caution that their experiments represent very preliminary successes. A great deal more testing is needed before any one of these materials is likely to be of practical value to the vegetable grower, it was emphasized.

Kansas Dealer Meeting Studies Soil Fertility

MARYSVILLE, KANSAS — Over 250 farmers and business men attended the third annual fertilizer meeting sponsored by the Roy Lewis Feed Co. of Home City, Kansas, the first week in March. The affair was held at the Moose Club here, with the program devoted to soil improvement methods.

Chief speaker of the evening was Dr. Floyd Smith, professor of soils at Kansas State College, Manhattan. Other speakers included County Agent Ed Hedstrom and Robert Easley of Manhattan, Kansas, state representative for Olin-Mathieson Chemical Co.

Mr. Lewis acted as master of ceremonies for the evening.

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POLYBOR-2... Highly soluble. Contains 20.5% Boron or 66% B_2O_3 . Applies as a spray or dust; compatible with insecticides and fungicides currently in use and may be applied in the same solutions. Bulletin PF-4.



PACIFIC COAST BORAX CO.

Intensive War on Khapra Beetle Succeeds In Keeping Pest Under Control, USDA Says

WASHINGTON—A massive clamp-down on activities of the khapra beetle has greatly reduced this insect's chances of spreading from the Southwest, the U.S. Department of Agriculture has announced.

In the first year of an intensive control program by Federal and State officials and the grain-handling industry, the insect has been eradicated by fumigation from about two-thirds of the grain-storage space found infested—60 million out of 90 million cubic feet. Fumigation of infested grain-storage buildings was begun in February 1955. Quarantine of premises and treatment of host commodities and grain sacks intended for re-use are helping to prevent the beetle's spread to new areas, says E. D. Burgess, in charge of plant pest control work for the Agricultural Research Service of USDA.

First identified in this country in 1953, the khapra beetle has been found in California, Arizona, and New Mexico at 345 locations, of which 158 have already been fumigated. Although inspection of almost 40,000 properties in 32 states

has so far revealed no additional beetles, intensive inspection continues, and training of State and Federal inspectors in how to ferret out and identify the pest is considered best insurance against its gaining new footholds.

Since this insect depends on man for its spread, search for it has been extended to railroad boxcars that moved commodities from infested plants prior to the cooperative quarantine and eradication program. Federal and State inspectors have been able to dig back into records and obtain serial numbers of the cars. Each time one of them shows up on a main line, the railroads notify USDA's inspectors, and a thorough search is made of the entire car, inside and out.

By the end of February, 58 of 236 cars on the list had been inspected. Only one car has been found infested and that one had only three specimens. This car was covered over immediately and fumigated with methyl bromide.

This intensive search and fumigation program are regarded as being justified, first by the tremendous damage the beetle is capable of causing, and second because the insect was discovered while apparently still confined to a small area, Mr. Burgess points out. The beetle is considered the world's worst stored-grain pest, and probably could thrive or survive in any part of the United States. In California, fumigating operations to date have cost only one-half of one percent of the annual value of the crops they protect.

Most spectacular phase of the work has been fumigation with methyl-bromide gas of immense grain warehouses, covered with gas-

impervious nylon plastic, to kill every beetle on the outside walls as well as inside the building. The plastic is anchored underground around the base, and the area around the building is sprayed with insecticide for additional protection.

One warehouse required 9½ acres of the plastic tarpaulin and 10½ tons of fumigant. Clothespin-like metal clamps hold the tarpaulin pieces together with airtight seams. This work must be done when there is little wind, because normal winds in the Southwest often tear the covering or pull it loose.

Forced-air circulation systems draw out air and circulate the gas by fans for quicker and more effective penetration of grain and building. Placed about the building and inserted into bulk grain to circulate the gas are probes with perforated tips attached to hoses and vacuum-cleaner motors. Similar probes carry methyl-bromide samples to a gas-analysis station, located outside the building, where a continuous check on gas concentration is maintained during the fumigation process.

Fertilizer Trade To Vie for Prizes In Safety Contest

WASHINGTON, D.C.—Pictures of safety devices or descriptions of improved safety operations existing in fertilizer plants will be worth money to a number of people in the industry. Prizes totaling \$500 will be awarded in a nation-wide "Picture of Safety Contest" beginning April 1 and ending June 30, the Fertilizer Section of the National Safety Council has announced.

The contest, open to any employee of the fertilizer industry, is designed to "uncover good ideas, which are already in practice, which have improved safety in fertilizer plants."

All entries are to be mailed to J. C. Kato, Fertilizer Section, National Safety Council, 425 North Michigan Avenue, Chicago 11, Illinois. No entry blank is required in the contest.

Employees of the fertilizer industry are asked to first, take a picture of any (1) new device, (2) improved equipment, (3) tested operation, or (4) other better way of doing a job which has improved safety in their plant. Second, entrants are asked to write a short statement covering (1) the original unsafe situation, (2) what they did to correct this unsafe condition; and (3) results obtained.

The first prize winner in the contest will receive \$50; second prize, \$30; and third prize, \$20. In addition, forty honorable mention prizes of \$10 each will be awarded.

In addition to the cash awards, appropriate certificates will be presented to the winners. The first, second, and third certificate awards will be presented at appropriate ceremonies. Honorable mention winners also will receive certificates.

Contest sponsors point out that benefits and use of safety devices or equipment developed in fertilizer plants are more important than the actual photographs; however, good, sharp photographs and simple written descriptions are not unimportant and will be taken into consideration by the judges. They also emphasize that elaborate presentations are unnecessary and undesirable.

National judges are: Ned Dearborn, president, National Safety Council, Chicago (chairman); Robert D. Gidel, supervising safety engineer, United States Department of Labor, Bureau of Labor Standards, Washington, D.C.; and Joseph Stennett, engineering director, American Mutuals Alliance, Chicago.

Southern Crops Not Hurt Badly by Recent Freeze; Fertilizer Rush Begins

MEMPHIS, TENN.—Early crops and fruit trees suffered only slight damage as a result of last week's cold snap in the Mid-South, but it caused farmers considerable worry and stopped spring plowing in some areas.

Extension officials in Arkansas, Mississippi, Tennessee and Missouri reported some damage was done to small grains, commercial and home gardens and blooming fruit trees.

If warm weather returns this week, farmers expect to start spring plowing on a general scale.

Arkansas peach growers had a narrow squeak last week when temperatures dropped sharply following several days of warm weather, which popped open some blooms.

However, C. A. Vines, associate director of the Arkansas Agricultural Extension Service at Little Rock, said it was generally believed that peach orchards on Crowley's Ridge and in northwest and Central Arkansas for the most part escaped without damage.

"Strawberry growers also were worried, but they came through without much damage from the cold," Mr. Vines said.

Mr. Vines said the past week saw a resumption of "heavy" farm preparations in Arkansas, and also some gardening.

Mississippi's blooming fruit trees and young truck crops apparently escaped serious damage from last week's sudden freeze, the Mississippi Agricultural Extension Service said.

Damage to fast growing small grains also was reported as slight. Some damage occurred to fast growing tender vegetable crops in home gardens, according to K. H. Buckley, extension garden specialist. These slightly damaged vegetables are expected to recover.

Chesley Hines, extension horticulturist, advised peach and plum growers to get spray materials ready for immediate spraying for control of insects and diseases which damage the fruit of these trees. Agricultural Extension Service county agents have detailed printed information on spraying fruit trees.

Land breaking is under way in most areas of the state and many farmers are moving fertilizer and insecticides to the farm.

Farmers in southeast Missouri reported the most favorable weather of the year last week.

"Except for a light freeze which nipped some plants, we've had excellent weather—something the local farmer's been needing all year," W. F. James, Pemiscot County agent, said.

Mr. James said planting of pasture and other seeding was now being done in the "high lands" of the county.

Farmers also are putting down fertilizer at a rapid pace and last-minute soil samples are being brought to the extension office.

Despite clear skies and rising temperatures, West Tennessee farmers remain skeptical over chances of early preparation for the big money crops.

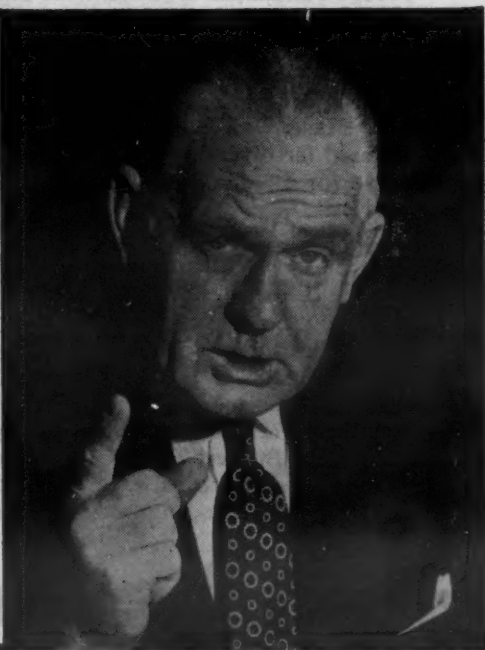
Twice this month the farmers' hopes have risen after a few days of sunshine and mild breezes. But each time the short intermission has been followed by rain, sleet and hail.

Judd Brooks, district farm agent, Jackson, said farmers would have started land preparation this week if winter weather had not returned just as fields were beginning to shape up.

Mr. Brooks said recent rains have upset the time table again and it may be April 1 before farmers take machinery to the fields. And that, he adds, depends on the weather during the next two weeks.

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SHOP TALK OVER THE COUNTER FOR THE DEALER

By **EMMET J. HOFFMAN**
Croplife Merchandising Editor

The peak work load season is fast approaching for the retailer of farm supplies and with it come the inevitable headaches of finding sufficient number of hands to get all the necessary jobs done. The retailer knows that a day or two's delay in filling a fertilizer order may mean a lost sale.

The advantages of part time or temporary workers can be the solution to many retailers' problems in having sufficient help available during the peak season.

There is no doubt that many—perhaps the majority of retail firms—could use extra help during the peak season. Yet only a small percentage takes advantage of the help that can be secured in the form of part time or temporary employees.

Whether the part time or temporary worker is a retired farmer or factory worker or student, he offers many advantages. He can be brought in for a few days to meet heavy work loads without putting him on the permanent payroll. He comes when he is needed most, spends concentrated time on a particular job and then goes home. Often he need not take a lunch hour or work break while thus employed.

The part time employee expects to be laid off when the rush season is over, thus creating no problem of overstaffing. Sometimes the part time worker's special talents enable him to do just what the retailer needs to get done most.

At the present time most communities report a fairly good supply of available part time workers. Of course it would not be wise to spend much money in recruiting them. However, for a modest amount an advertisement in the home town paper, the high school paper or notifying the state employment office will turn up plenty of applicants.

In some cases the permanent employees can recommend someone who is available for temporary work. In those cases the employer has a ready-made recommendation from his employee who can provide the answers to such questions as to prospect's capabilities and qualifications.

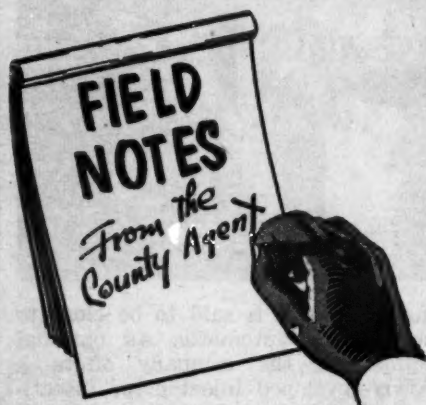
For Better Living

We're indebted to Steve Turner, Pontiac, Ill., fertilizer dealer for this thought-provoking comment:

"May we suggest you do a little research on your own? Make a list of the farm families you know well—divide them into two groups—those who follow an intelligent fertilizer program and those who do not.

"Which group has more of the better things of life, is more respected in the community, has more opportunities for their children, more money for travel, more home appliances, more money for the church, more reserves for the rainy days?

"Yes, indeed, you'll find intelligent use of fertilizer goes with better living. Foregoing new rugs now for fertilizer will pay off in the end with better living."



By **RAYMOND ROSSON**
County Agent, Washington County, Tenn.

We dare not think of any knowledge, least of all the knowledge of living things, as static, fixed or finished. We need to push on to new horizons of thinking and investigation; and reaching them, see newer horizons. We need a longer view in research and an appreciation that it can have two goals.

First, practical, everyday results that can be expressed in terms of definite methods, tools and advice, and second, fundamental, basic knowledge on which the applied science tests.

Will insects take over? Disturbing, yes. We have more insect pests, although we have better insecticides to use against them and better ways to fight them.

How many insects are there? Entomologists have already named some 625,000 or more different species. In America, north of Mexico there are 82,500 different kinds of insects, plus 2,600 kinds of ticks and ants.

If all lived, the descendants of one female aphid would amount to 1,560,000,000,000,000,000,000 by the end of the season.

Every minute of the day and night billions of insects are chewing, sucking, biting and boring away at our crops, livestock, timber, gardens, homes and even ourselves.

Estimated losses due to sixty odd insects in the United States were set in 1938 by the U.S. Department of Agriculture at \$1,601,527,000 annually.

Through the centuries people have been plagued by insects and have died by the millions from diseases carried by them. Man is gradually gaining mastery over them, but the battle is long and expensive . . . the burden is heavy.



PENNSYLVANIA DEALER—Charles E. Huber, owner of Huber Feed Service, Schaefferstown, Pa., often obtains a new customer by loaning a small spreader free and giving the prospect a sample supply of fertilizer.

Pennsylvania Dealer Rates Direct Mail as Most Effective Tool in Sale of Fertilizer

Direct mail is considered an important tool for the Huber Feed Service, Schaefferstown, Pa., for selling fertilizer, and Charles H. Huber, store owner, makes sure that every customer and prospect gets at least one piece of mail monthly.

"Contrary to the general opinion that the farmers' mail box is full of mail and that they don't read half of it, is the down to earth fact that they do read their mail and that it has a lot of impact on them," says Mr. Huber. "From time to time, we test the drawing power of our mailing pieces to determine if they are worthwhile and the tremendous response that we get from them shows us that we are channeling our money into the right advertising media."

To make direct mail worthwhile, Mr. Huber feels that a fertilizer dealer has to make special offerings from time to time that will keep the reader's interest concentrated on his mailing pieces.

"Early fall and early spring are our two main periods of the year when we sell the bulk of our fertilizer stocks," says Mr. Huber. "While we sell fertilizers all year round, we would say that better than 70% of our fertilizer sales are made at this time. Our mailings, therefore, are our contact between the store and the customer throughout the year."

Mr. Huber utilizes three types of direct mail advertising that goes to more than 500 recipients. One of the mailing pieces is an institutional piece that is prepared by the manufacturer of the fertilizer that Mr. Huber sells. The second is a mailer that a local printer sends out to all boxholders in the county and Mr. Huber advertises in this regularly. And the third is his own mailing pieces that are prepared by him on a mimeograph on post cards or full page size.

"We use the institutional type of advertising when we don't have anything special to say to our customers

or prospects and just want to keep our name in front of them," says Mr. Huber. "Naturally as we get closer to the farmer's heavier fertilizer purchasing period, we start using our own mailing pieces that help to 'perk' up interest in our store and fertilizer line. The monthly mailer that the printer sends out backs up the advertising material that we mailed from our store."

To get customers and prospects to become fully acquainted with Mr. Huber's location, his store and line of products available to them, he makes many free offers in his mailing pieces. Some of his material advertises free fly swatters, a clothes pin bag, free pencil case to youngsters, a cigarette lighter for men, etc.

A count of the number of cards that were brought in to receive these free gifts shows as high as 75%. Something for nothing always attracts a farmer and his family and to Mr. Huber, it is a very inexpensive way of getting both customers and prospects to visit his store.

"We even got better than a 100% response once," Mr. Huber said. "When one of our mailing pieces told readers that we had just acquired a new stock of feed bag patterns and that customers could exchange their own pattern feed bags for other patterns that we had available. We mailed out 500 cards and had better than 600 women come here. I don't know where the other hundred women came from, but it was perfectly all right with us because it helped us to make new acquaintances."

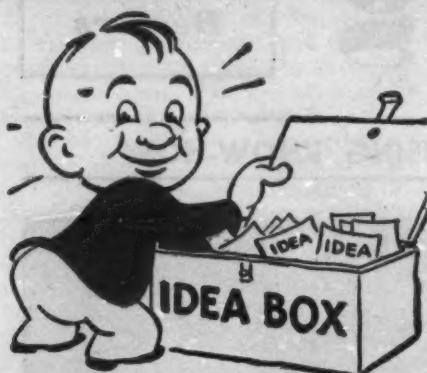
Every time customers come into the store for their free gift, Mr. Huber gets the conversation turning to fertilizer. The large fertilizer stocks and insecticides that are on display help to impress the farmer with these chemicals.

"We have been enjoying increasing sales of fertilizer by constantly promoting to the local farmer the oppor-

(Continued on page 16)

Better Selling

Richer Sales Fields for Dealers



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

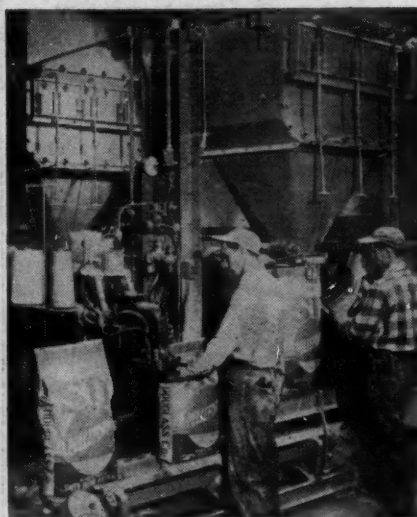
No. 6387—Booklet on Grasses

Phillips Petroleum Co. has issued the first of a series of booklets on pasture and range plants. The booklet, "Native Grasses—Legumes and Forbs," is a guide to the uses and favorable locations for native grasses as livestock forage, strikingly illustrated by water-color reproductions. The series is being issued as a service related to the company's agricultural demonstration project, located on the K. S. Adams Ranch four miles north of Foraker, Osage County, Okla., where projects involving range management, fertilizer and other agricultural petrochemicals are under study. The booklet is available free to teachers and other persons interested in agriculture, as a teaching and training guide for a better understanding of pasture and range plants. The remaining sections of the series, to be published within the next 18 months, will deal with other native grasses, legumes and forbs; undesirable grasses and weeds; weeds and poisonous plants; and introduced grasses and legumes. Each plant discussed in "Native Grasses—Legumes and Forbs," is illustrated by vivid, true-

to-life color reproductions, printed in four colors. The grasses are described in detail; their uses and value as livestock forage are discussed; and the sections of the country where they usually are found or may be grown are given. Secure the booklet by checking No. 6387 on the coupon and mailing it to this newspaper.

No. 6383—Fertilizer Packer

Features of a new fertilizer packer developed by Packaging Service, Bemis Bro. Bag Co., have been announced. The packer is claimed to hold consistently to weight tolerances of 4 oz. plus or minus on 50- to 100-lb. units. According to the announcement, the equipment "forms a complete packaging unit from product weighing through bag closing with a production rate of 16 to 18 eighty-pound bags per minute. It will handle all types of sewn open-mouth paper bags and textile bags, in size ranges of 50-, 80- and 100-lb. for paper and 100- and 200-lb. for textiles. Scales are available for fertilizers having either free-flowing or sluggish characteristics. The bag clos-



ing equipment is said to be close to being fully automatic. As optional equipment, the company offers a newly-developed injector for insecticide treatment at the time of packing. Several installations of the new packer have been in commercial operation for a number of months. Secure more complete information by checking No. 6383 on the coupon and dropping it in the mail to Croplife.

No. 6386—Antidotes Folder

A folder on antidotes for various agricultural chemicals taken accidentally has been prepared by United Chemical Co., division of United-Heckathorn. The folder is prepared so that it can be made into wallet size. One side of it is devoted to a list of "approved safety equipment," their manufacturers and distributors for products such as dusts and mists. The folder is available without charge. Check No. 6386 on the coupon, clip and mail it to Croplife and the folder will be sent to you.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6379—Liquid Fertilizer Booklet

Available to readers is a new booklet, "Neutral Liquid Fertilizer," a publication prepared by Fabricated Metals, Inc. The booklet states that the company can provide "package plants engineered for almost automatic operation at various desired capacities." The company offers two

plans: The do-it-yourself package which consists of the essential plant elements upon which there are patents pending. The converter or cooler, reactor assembly, transfer equipment, necessary valves and fittings are shipped direct to the site. The turnkey job provides all design, engineering, construction and installation for the manufacture of both aqua and neutral mixes. Information about costs, manufacturing margins, technical details, advantages and leasing details are included in the booklet. Check No. 6379 on the coupon and mail it to secure the booklet without charge.

No. 6380—Fertilizer

"Shur-Green" is the trade name of a new concentrated liquid fertilizer for lawn and garden use, manufactured by Continental Fertilizer Co. It will be available to most areas in the Midwest this spring, according to company officials. The new product comes in a concentrated liquid form which is applied as the turf or soil is watered. The garden hose is attached to an attachment called a "gro-gun" at the top of a quart container, and as the water sprays through the dispenser, the liquid fertilizer and water is automatically mixed. An average lawn can be fertilized in this manner in approximately 15 minutes, it is claimed. Secure more complete details by checking No. 6380 on the coupon and mailing it.

No. 5395—Aluminum Conveyor

A new line of aluminum multi-purpose conveyors called Ve-Beyor has been announced by the Oliver Corp. The conveyors are equipped with ½ hp, 115 volt, single phase motors with reversing drum control and power drive, gear reduction unit. No pulley adjustments are required at either end of the conveyor, the manufacturer says. A new "V-groove guide" principle is said to keep carrying belts centered at all times, eliminating the problem of belt run-off. Three sizes available are



12 ft., 16 ft. and 20 ft., weighing 149, 192 and 235 lb. respectively. Use suggested by the manufacturer include floor-to-floor operations, boosters for gravity lines, for loading and unloading vehicles, for moving and stacking packages in stores, factories, warehouses or on farms. For complete information, please check No. 5395 on the coupon and mail it to this publication.

No. 6378—Surface Active Agent

A new anionic surface active agent known as Isomal 265 has been developed by the Johnson-March Corp. which states that it can be used in all kinds of chemical processes as wetting agent, rewetting agent, penetrant, detergent and emulsifier. It is specially formulated to reduce processing time, increase processing efficiency and improve finished product according to the company announcement. The fluid is described as a con-

Send me information on the items marked:

- | | |
|--|--|
| <input type="checkbox"/> No. 5395—Conveyor | <input type="checkbox"/> No. 6382—Spreaders |
| <input type="checkbox"/> No. 6377—Pesticide | <input type="checkbox"/> No. 6383—Fertilizer Packer |
| <input type="checkbox"/> No. 6378—Surface Active Agent | <input type="checkbox"/> No. 6384—Booklet |
| <input type="checkbox"/> No. 6379—Booklet | <input type="checkbox"/> No. 6385—Anhydrous Folder |
| <input type="checkbox"/> No. 6380—Fertilizer | <input type="checkbox"/> No. 6386—Antidotes Folder |
| <input type="checkbox"/> No. 6381—Belt Conveyor | <input type="checkbox"/> No. 6387—Booklet on Grasses |

NAME

COMPANY

ADDRESS

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 349,
F. L. & R.)
MINNEAPOLIS,
MINN.

BUSINESS REPLY ENVELOPE

No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67,

Reader Service Dept.

Minneapolis 1, Minn.

Better Selling

Richer Sales Fields for Dealers

concentrated sulfonated ester type liquid. It is recommended as an emulsifier or dispersant in the manufacture of agricultural sprays and insecticides to give uniform and efficient coverage, the company claims. Clear in appearance, the product has a neutral pH factor and a specific gravity of 1.088 at 60° F. It is approximately 65% active and mildly pleasant in odor. It is available in 55-gal. steel drums. Secure more complete details by checking No. 6378 on the coupon and mailing it to Croplife.

No. 6384—Products, Process Booklet

A 36-page booklet entitled, "Products and Processes" has been prepared by the Union Carbide & Carbon Corp. Described in the booklet are varied lines of products and processes in which the company and its principal divisions are engaged. Among the lines are agricultural chemicals which appear under the brand name of "Crag." To secure the booklet check No. 6384 on the coupon and mail it to Croplife.

No. 6377—Granular Pesticides

The Minerals & Chemicals Corporation of America, Agricultural Chemical Dept., has available its new issue of Attacloy Pesticide Digest which covers pertinent points on the subject of granular pesticides. The entire issue is devoted to granular pesticides, general and granular pesticide applications for the European corn borer in particular. Specialized field application rigs for these materials are illustrated and various mesh classifications are shown in actual size. Of interest also is a chronology of the corn borer. The issue is available without charge. Check No. 6377 on the coupon and mail it to Croplife.

No. 6382—Lime, Fertilizer Spreaders

A new line of lime and fertilizer spreaders, identified as the K-5 series, has been introduced by the Baughman Manufacturing Co. A choice of three types of conveyors and three types of drives is offered. Among the conveyors are the drag chain, chain belt and belt types. One drive choice is a power takeoff driven distributor and conveyor and drives direct to a 44-to-1 sealed gear case and by

per hour are described in a new Link-Belt Co. book No. 2579. The new conveyors called by the trade name, Pre-Bilt, incorporate standard Link-Belt components, including the new series 50 idlers, packaged with sectional truss frames and structural steel supporting bents. They are built in 18, 24, 30, and 36-in. belt widths, with 24 and 42-in. deep trusses. Drives range up to 40 H.P. More information is contained in the illustrated 8-page book No. 2579. For a copy, check No. 6381 on the coupon and drop it in the mail.

No. 6385—Anhydrous Ammonia Folder

A folder entitled, "Higher Yields—Greater Profits With Anhydrous Am-

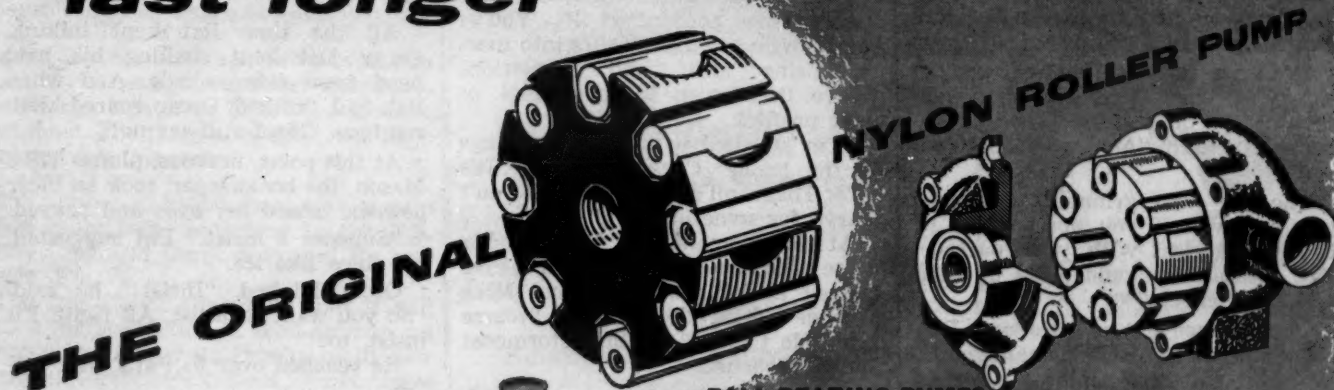
monia" has been prepared by Standard Oil of Indiana and is available for distribution without charge. Sections of the folder are devoted to: Anhydrous ammonia—what it is, how it's made, how it's applied, how it's fixed in the soil, when to apply it and how much to apply. One chart shows the approximate crop increase per acre, under average farm conditions, with the addition of 10 lb. of fertilizer nitrogen. Another chart shows how profits increase as yield per acre of corn is increased by the use of fertilizer. The folder is produced in several colors and one corn picture in color shows the effects of the lack of major nutrients in the soil. Secure the folder by checking No. 6385 on the coupon and mailing it to Croplife.

HORTICULTURIST HONORED

CONCORD, N.H. — J. R. Hepler, known New England wide as "Hep," the Granite State Gardener, received the praise of New Hampshire's horticulturists and beekeepers at a testimonial banquet held here in his honor. After 38 years of service as professor of horticulture at the University of New Hampshire and extension home gardening specialist, the veteran agriculturist will retire in July. Paying tribute to "Hep's" "natural ability" as a teacher, philosopher and friend was Lincoln Pierson of Quincy, vegetable grower and a former student of the Gardener. Said Mr. Pierson, "Hep" liked to feel that he left every man he ever met knowing a little more than before the contact."

HYPRO PUMPS sell faster work better last longer

More farm sprayers
use HYPRO pumps
than any other kind



These economical bronze pumps are useful in so many ways that they never remain long on a dealer's counter. Both types are available in four sizes (¾" size shown). The FlexROTOR style, with oil resistant rubber impellers, are self priming to 10 ft.; hold prime to 22 ft.; develop up to 30 lbs. pressure. The FlexROLLER pumps, with either rubber or nylon rollers, are reversible and develop up to 75 lbs. pressure.

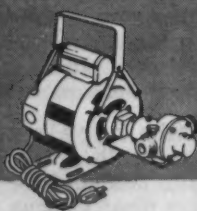
BALL BEARING PUMPS FOR FARM AND INDUSTRY

SERIES 1500 PUMPS, designed for belt or PTO drive, are big, rugged, and efficient... feature permanently lubricated ball bearings, cartridge-type seals, stainless steel shafts, nylon rollers, and 1½" ports. Housings and rotors are Ni-Resist or cast iron. At 1100 rpm, they deliver 60 gpm at 150 lbs. pressure.

SERIES 7500 PUMPS, with ¾" ports, have 8 nylon rollers and deliver 6 gpm at 350 lbs. pressure (600 rpm). An all-purpose pump for farm use.

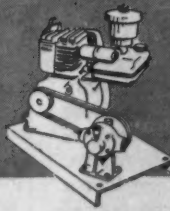
SERIES 6000 PUMPS, with ¾" ports and six nylon rollers are excellent replacements for most gear pumps, wear much longer. Develop 200 lbs. pressure.

SERIES 4000 PUMPS, include 18 different models, all with ball bearings, replaceable seals, stainless steel shafts, and other famous HYPRO features.



PORTABLE PUMP

Pump out basements, fill tanks, bail boats or what-have-you with this handy motorized pump.



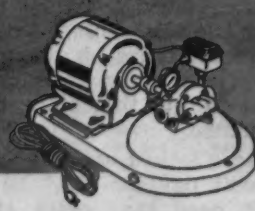
LAWN WATERER

Use FREE WATER from shallow well, stream, or lake with this engine-driven (or electric) pump.



TIRE FILL KIT

With hoses, strainer, and solution valve this economical unit makes tractor tire filling easy and fast.



WATER SYSTEM

A low-cost, tankless, automatic, shallow well water system for cottage, resort, or farm home.

No. 6381—Belt Conveyor

Sectional belt conveyors in standard, pre-engineered units with capacities ranging up to 1,500 tons

FOR FREE CATALOG WRITE HYPRO ENGINEERING, INC., 700 39TH AVENUE N. E. MINNEAPOLIS 21, MINN.

Better Selling

Richer Sales Fields for Dealers



A well dressed, heavy set man, with brown storm coat and brown hat walked into the salesroom of the Schoenfeld & McGillicuddy Co., farm chemicals. He was smoking a big cigar, and he approached rotund Oscar Schoenfeld, seated at this ever-neat desk, figuring discounts.

"Hello, Schoenfeld," he said cheerily. "Make out a check to me for \$75."

Had someone dropped a bomb outdoors, Oscar would not have been more surprised. The mere mention about paying out money like that always reacted violently on him. He blinked, his face paled and he glanced at the man. Immediately he recognized Mike Werner, real estate dealer, insurance man, house builder and general promoter.

"You are mistaken," Oscar replied slowly in that precise speech which showed the crisp business like manner of the man. "Ach, we do not owe you \$75."

The big man grinned. "Oh, sure you do, even if you don't know it. I closed a deal with your partner, Pat. He said I should come up here and get a check."

Oscar's face got a little red. Pat, eh? Some more of his shenanigans.

"And now what did he do?" he asked curtly. "Buy a house or lot and try to make the partnership pay for the cost of it?"

"No, but I wish he had," said Mike Werner. "I gotta coupla houses I'd like to sell. Pat only rented that empty store of mine next to the Leader Department Store. It's been empty since that lingerie fellow failed last month."

"Rented a store?" Oscar asked helplessly. "We've got a store. Why do we want another one?"

"Sure, you got a store," Werner stated. "All Pat's renting is the window space. And he's getting it cheap. That store rents for \$250 a month, that's what. Right next to the Leader—that's a wonderful spot. Why, the Leader gets twice the traffic of any store in town—farmers, too. Pat's smart renting that empty store window for one month."

Oscar grunted. "If that empty store is such a good spot, how is it that so many businesses fail in it? Nobody has stayed more than a year."

Mike Werner flushed a little and smoked heavily. "They didn't have good business sense," he said. "They didn't capitalize on the traffic. They overpriced their merchandise. The right guy, in that store, could make a fortune."

Oscar looked very stubborn. "Well, I won't pay the \$75," he said. "We don't need that extra store space. Look—" he waved his hand about. "We've got all kinds of space here. Goods all over the place. We don't need any more."

"But you haven't got the traffic here that there is in front of my empty store building," pointed out Mike Werner. "Can't you see that?"

"No, I can't," Oscar said coldly. "The people that go into the Leader to buy are those who charge, charge, charge, all the time. They haven't got any money to buy elsewhere for cash. We don't want that kind of business. We have enough delinquent accounts now, and ach, that Pat always puts off going around collecting. I don't think that traffic downtown is worth a can of sauerkraut, maybe not that much."

Mike Werner gasped, and his face got redder. "Holy, sufferin' cats, Oscar! I've heard a lot of stories about you bein' so tight, but never believed them. Now I know. Let me tell you, you'll never get rich just savin' your nickels and taking no more chances than sinking the money in a savings account at 2%. You've got to reinvest your profits into merchandising ideas and promotions where the return is up to 10% of your profit."

"I'm satisfied with 2% on savings in the bank," Oscar declared. "It's safe. That's all I care about. I won't starve for sometime yet."

At this moment, Pat McGillicuddy came into the office. His blue eyes lighted as he saw Oscar and Mike Werner talking, then his face became grim. He took off his blue stormcoat and approached.

"Pat!" roared Mike Werner. "What kind of business is this? Your partner has reneged on the deal we made. He won't pry open the checkbook."

"You bet I won't," Oscar reiterated stubbornly, his face set like a bulldog's.

Pat McGillicuddy sighed, and then patiently explained the whole deal to Oscar, how, for a period of one month, they could have the use of those fine windows in a downtown store, fill them with fertilizer, insecticide and other farm displays, catch the attention of more farmers and sell more goods. They would be able to pay for the \$75 monthly rental fee out of extra profits and have some left besides.

All the time Pat kept talking, Oscar just kept shaking his bald head from side to side. And when Pat had finished Oscar roared with red face. "No, I still say no!"

At this point, nervous, plump Tillie Mason, the bookkeeper, took an ulcer powder, closed her eyes and prayed.

"Suppose I insist," Pat suggested, his voice like ice.

Oscar blinked. "Insist!" he said. "So you want to insist. All right, I'll insist, too!"

He reached over to Pat's desk and

Monthly Publication Puts Personal Touch Into Advertising of New Hampshire Firm

By AL. P. NELSON
CropLife Special Writer

Fertilizer, insecticides and related farm supplies get excellent publicity in the monthly "Merrimack's Messenger," published by the Merrimack Farmers Exchange, Inc., Concord, N.H., an organization which has 23 retail stores throughout southern New Hampshire and a large feed mill at Bow.

The publication, ranging from 24 to 40 pages, depending on the season, is 18 years old and was founded by the general manager, Roy W. Peaslee. It is 6 by 9 inches in size, uses a good grade of calendered paper and has a two color cover.

Periodically over the year it features all of the various farm supplies which the firm sells in its many retail outlets, such as feeds, fertilizer, salt, building materials, farm machinery, farm hardware, water systems, farm appliances, paints, etc.

The Merrimack's Messenger is mailed monthly to approximately 10,000 people in the southern New Hampshire area who are customers of this stock financed cooperative. In addition, each retail store has a sizable monthly supply of the magazine on its counters for customers to take.

Charles Fletcher, sales manager of the firm, reports that this monthly publication is an important factor in helping the firm achieve a sales volume of approximately \$15,000,000 plus every year.

The February issue of Merrimack's Messenger each year is the seed catalog issued by the company. In addition to pictures and listing of various types of seeds, it also contains listing of garden and farm fertilizers, dusts, spraying equipment and other items.

The publication lists all of the officers of the company as well as the 23 retail stores and their telephone numbers. The reading menu in the periodical is excellent. It contains articles on fertilizers, feeding, dairy cows, poultry, pets, and also tells of many of the activities of customers. A page or two about company news tied in with various stores, has much local appeal.

Mr. Fletcher reports that some store managers say that some customers keep a file copy of the Merrimack's Messenger because there are articles they wish to save for reference. Thus, any publication which rates so high in readability is good advertising, Mr. Fletcher and other officials believe.

"The person who receives this magazine every month will get an idea of the many products we stock and sell and also what various types of services we offer," says Mr. Fletcher. "We would have to do a tremendous amount of newspaper and radio advertising to duplicate what we accomplish with the Messenger. While we do some newspaper and radio advertising, we cannot put into that advertising the personal touch that we do in the Messenger."

lifted up a stack of delinquent accounts, clipped together. "How about these?" he shouted. "They've been on your desk seven days and you haven't done a thing about them. Insist, will you? Well, I will insist too. You go out and collect every nickel of these old accounts before I pay that \$75. I insist."

For a moment Oscar and Pat glared at each other in a battle of wills. It was at this point that Mike Werner turned on his heel and walked out. "Thank God, I haven't a partner!" he muttered as he walked down the street. "What a waste of time trying to make a deal with those birds!"

Give the Farmer Fertilizer Facts, Maine Dealer Says

For many years when he was a fertilizer and feed salesman in New England, J. Valton Neal looked forward to the day when he could have a business of his own. About 10 years ago he was offered a chance to purchase a feed and fertilizer business at Skowhegan, Maine, and he took it.

Since that time, Mr. Neal has built the business steadily and now does a sizable volume in various farm supplies. He sells quite a bit of fertilizer for potatoes, as he is on the edge of the Maine potato growing region. In this area farmers use 5-10-10 for potatoes, Mr. Neal reports. Some oats is grown in the area, and on this crop, too, 5-10-10 is quite a favorite.

Mr. Neal's method of selling fertilizer is to tell farmers specific facts about gains where others have used proper analysis fertilizer. Being a former salesman for fertilizer and traveling several states, he has had much experience with fertilizer being used on different soils, and this helps him now in his retail business.

"Farmers are willing to listen to anyone talk fertilizer," says Mr. Neal. "for they have heard a lot about it through newspapers, magazines, radio and from county agents. They are also learning that it pays to fertilize up to recommendations made by state colleges of agriculture."

Mr. Neal is also engaged in community work. He is one of the trustees of the Skowhegan State Fair, an event which attracts thousands of farmers each year. Furthermore, he is in charge of all livestock exhibits, a post which he has held for the past five years. This means a great deal of work outside his store, but he likes it and it also enables him to make many more contacts with farmers.

This dealer does a good insecticide business, too. He carries a fine stock of these materials, including sprayers in his roomy display area. Farmers who step into the store get plenty of buying suggestions, too, when they see farm and garden tools, as well as feeds and poultry equipment displayed in orderly fashion.

"We plan to go into the sale of bulk fertilizer and also bulk spreading," states Mr. Neal. "I think there is going to be a demand for that service in this area, for it is no quite as hilly as in some other parts of the state."

SPRAY SCHEDULES

NEWARK, DEL.—The University of Delaware Agricultural Extension Service has issued two folders containing the spray schedules for insect and disease control on vegetables and control of fruit insects and diseases in orchards and home plantings.

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What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

The Western Cotton Production Conference held March 6-7 at Fresno, Cal. attracted some 700 persons. Prominent on the program were papers discussing control of pink bollworm, thrips, nematodes and other pests; fertilization, seed treatment and weed control. The conference was sponsored by the Southwest Five-State Cotton Growers Assn. and the National Cotton Council of America in cooperation with industry and Federal and State agricultural agencies.

Negotiations for the formation of a new fertilizer company in Mississippi were reported in Croplife, March 12. Mississippi Chemical Co., Yazoo City, Miss., said that the new plant would be located at Pascagoula, Miss. Its capacity would be 150,000 tons a year and the cost \$6 million.

A survey conducted by Croplife indicated good reaction to the introduction of application machinery that would allow farmers to apply insecticides at the same time as fertilizer was put on, without the necessity of premixing the two materials. Machines were reported to be on the market by E. S. Gandrud Co., Owatonna, Minn., and John Deere Mfg. Co., Moline, Ill.

A concession in the original request made by railroads for a 7% hike in freight rates was granted the fertilizer industry by the Interstate Commerce Commission. The increase will be 6% rather than 7% on most commodities, with ceilings on the amount of extra cost per ton on some items.

J. C. Gaines, Texas A&M College, was named chairman of the Southwestern Branch, Entomological Society of America, at the group's annual meeting at Ft. Worth, Texas, Feb. 20-21. Dr. Gaines succeeds D. C. Earley, Los Fresnos, Texas.

Greater areas of infestation have been marked up for the gypsy moth which has increased its area of activity by 8,750,000 acres in the past two years, the U.S. Department of Agriculture reported. The pest was first known in the U.S. in 1869, but has spread widely since that time.

Acreage allotments for peanuts were expanded for the 1956 season, the USDA announced. The increase was for 40,342 acres in Alabama, Florida, Georgia, New Mexico, North Carolina, South Carolina, Tennessee and Virginia.

That a tougher selling job lies ahead for custom applicators was emphasized at the Ohio-Indiana agricultural aviation conference at Columbus, Feb. 22-24. "Farmers will pull the purse strings tighter in 1956," one speaker said. "They will use ground equipment on hand. The plane applicator will have to show greater benefits if he takes in more cash this year."

Production of superphosphate in 1955 totaled 2,310,306 short tons, a gain of 3% over the 1954 output of 2,237,900 short tons, according to the U.S. Department of Commerce. Escambia Bay Chemical Corp. dedicated its new \$25 million nitrogen plant near Pensacola, Fla.

Nitrogen Division, Allied Chemical & Dye Corp., announced that it will install at its Hopewell, Va., plant facilities for production of solid ammonium nitrate. The firm also plans to place into operation at its Omaha plant new facilities for production of additional nitrogen fertilizer solutions. . . . National Farmers Union will erect a multi-million dollar fertilizer plant in Arkansas.

Current capacity for production of anhydrous ammonia was estimated at 4,072,000 tons NH₃ by the U.S. Department of Commerce. The department also said that more than 450 million pounds of toxic materials (not including formulations) were produced in 1955. . . . Swift & Co. announced that it would construct a new plant food factory in Pompano Beach, Fla.

The importance of good management in glassland farming was stressed at the annual meeting of the Association of Southern Agricultural Workers.

Chipman Chemical Co. announced plans to build a 2,4-D plant in Portland, Ore. . . . Fertilizer dealers at Wisconsin Farm and Home Week were told that today's high production costs make it necessary for farmers to get every crop acre to produce to the limit of its capacity.

Stauffer Chemical Co. and Wilson & Geo. Meyer & Co. signed a long-term exclusive sales agreement whereby the Meyer firm will broaden its distribution in the West and Midwest to handle the increased production of new pelletized agricultural phosphates made by Stauffer.

Grace Chemical Co. said it would authorize \$100 million in capital expenditures in 1956, with some 40% of this total going into chemical expansion. . . . The USDA recommended an 8% cut in total acreages devoted to summer and late potatoes; and rice growers of the U.S. approved marketing quotas for the 1956 rice crop. The referendum was held Jan. 27.

Dr. Malcolm McVickar, for many years associated with the National Fertilizer Assn. and later with the National Plant Food Institute, was appointed chief agronomist for the California Spray-Chemical Corp. The appointment was to become effective April 1, 1956.

Merger of the Wilson Chemical Sales Co., Portland, Ore. with Great Western Chemical Co., was announced. Richard H. Wilson is general manager of the new operation. . . . Dallas Cantwell, formerly agronomist with Spencer Chemical Co. joined Southern Nitrogen Co. at Savannah, Ga.

Diamond Alkali Co. announced appointments of L. J. Polite, Jr. and John W. Kennady to new positions. Mr. Polite is now product sales manager for a group of organic chemicals and Mr. Kennady is sales manager of agricultural chemicals for the company.

Two new sales representatives were appointed by Grand River Chemical Division, John Deere & Co. They were Bruce Campbell and Norman Messick. Mr. Campbell operates in Nebraska and Kansas; Mr. Messick in New Mexico, Western Texas and Eastern Arizona.

New facilities for the manufacture of granular high-analysis fertilizers were completed at Perry, Iowa, by Davison Chemical Co., Division of W. R. Grace & Co. . . . Corn borers were found infesting the stalks of cotton plants in Missouri and Tennessee. It was the first such incident to be reported.

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Liquid Fertilizer Applicators

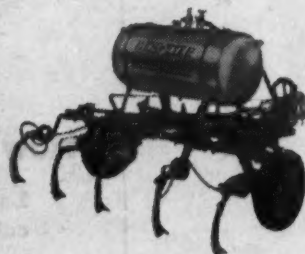
New Dempster 3-point hitch hydraulic lift Liquijector, equipped with super-accurate, easy to use Dempster Liquijector pump. Will permit use of large variety of 3-point hitch tools in combination with application.

Do a Better Job at Any Season!

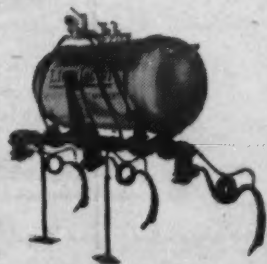
If you're still wondering whether the proven benefits of Anhydrous Ammonia or high-nitrogen solutions are practical, economical and profitable on your farm—you should know more about Dempster Liquijectors.* Highest in accuracy and efficiency of application, the complete Dempster Liquijector line of applicators is designed to meet any farm conditions—type of soil, acreage, row crop, field crop or pastures . . . large or light tractor power . . . NH₃ or solutions. Moreover, with most Liquijector models you can combine the application with your other operations—plowing, tilling, planting or cultivating . . . saving time, man power and tractor power.



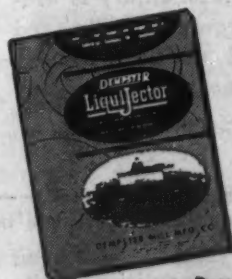
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Quickly mounted Dempster D-100 and D-60 Liquijectors, with flow control valve, for smaller acreage and low cost.



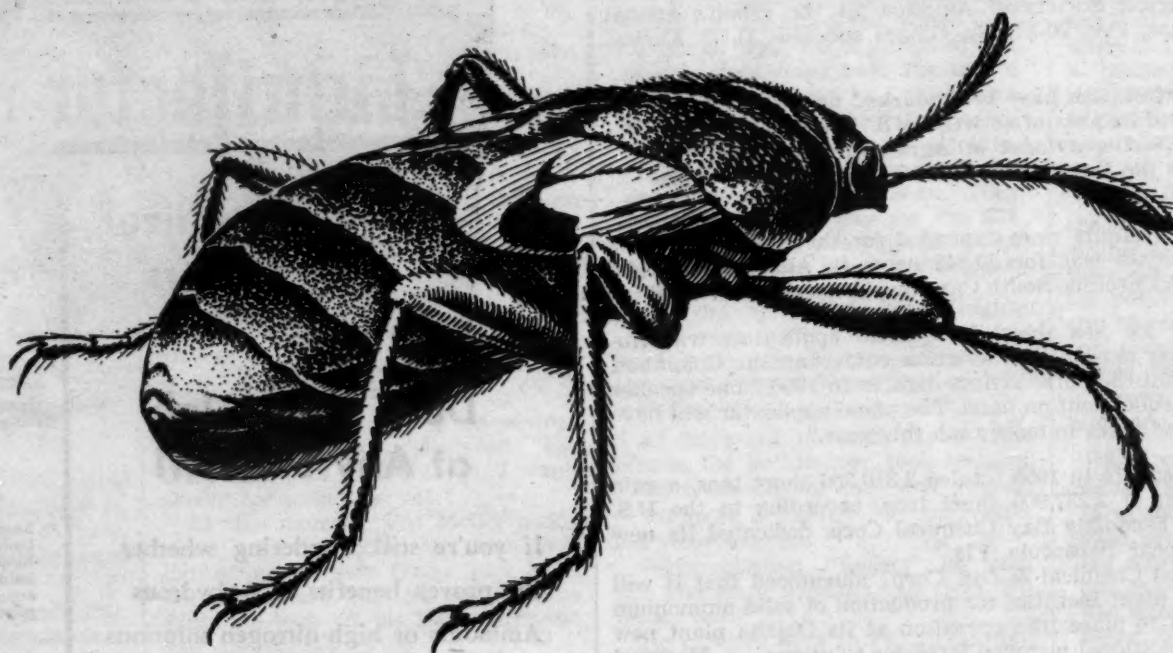
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Dempster Liquijectors Type S for Solutions available with capacities to 300 gallons.

DEMPSTER MILL MFG. CO.

Beatrice, Nebraska

Mr. Dealer—Cut out this page for your bulletin board



How to Identify

Lawn chinch bugs are quite small, black in color and about $\frac{3}{8}$ inch in length with white spots on their wings. They feed exclusively on corn and grasses and during periods of abundance, or in dry weather, lawns may be damaged seriously by the pest.

Damage Done by the Pest

The lawn chinch bug attacks the lawn from above ground. It sucks plant juices and injects into the plant a toxic salivary substance which damages the plant and causes bare spots and brown patches in the grass. Injury is usually seen first along driveways, walks and curbs. In thick, matted turfs, damage is much more severe than in new or unfertilized lawns.

Habits of Lawn Chinch Bug

After spending the winter months in sheltered areas, the bug appears in the early warm days of spring and begins the process of laying eggs in which it engages for nearly a month. Nymphs hatch about two days later and begin to feed.

Lawn Chinch Bug Control

As in most cases, no single control material is used to halt the bug. A number of sprays, dusts and barriers of various sorts have been employed to control the lawn chinch bug. Toxaphene, chlordane, aldrin and dieldrin, rotenone, DDT, sabadilla and nicotine all appear in various literature as means of control. Methods of application appear to be of particular importance, with emulsions and granular forms being preferred in a number of cases. Lawns should be watered both before and after application.

Drawing of Lawn Chinch Bug furnished Croplife through courtesy of Shell Chemical Corporation, New York

Previous "Bug of the Week" features have been reprinted in attractive 24-page booklet, priced at 25¢ single copies; reduced rates in quantities. Write Croplife Reprint Dept., Box 67, Minneapolis 1, Minn.

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The pest was identified by Max P. Tomomologist. The pest was localized at the site of the outbreak 5 with the help of a trap, was attacked in 1951 and in 1952 some control work was done. The pest remains in the soil and is again treated with the help of adults and treated soil.

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FARM SERVICE DATA

Extension Station Reports

A serious pest of pastures, turf, and lawns in parts of New York State, the European chafer, stubbornly resists chemical assaults on its single outpost in Connecticut, according to the Connecticut Agricultural Experiment Station.

The pest was found in Meriden in 1951 by Max P. Zappe, deputy state entomologist. The infestation, highly localized at the junction of U.S. Route 5 with the Wilbur Cross Parkway, was attacked with insecticides in 1951 and in the spring of 1952. Some control was evident, but the pest remains entrenched. Infested soil was again treated in 1955, but the flight of adults continued from the treated soil.

★

Streptomycin, or a combination of streptomycin and an organic fungicide, such as spargon or phygon, promises to be of value in treating potato seed for disease, according to Pennsylvania State University. Initial trials conducted in 1955 in seven widely-scattered locations in Pennsylvania will be repeated this year.

This work is being done by Dr. H. F. Fink, plant pathologist for the Pennsylvania Agricultural Experiment Station with the collaboration of O. D. Burke, R. S. Kirby and L. P. Nichols of the extension service.

Treatment of seed is a common practice among growers and the new disease control materials are relatively inexpensive. Improvements in yield ranged from 165 bu. per acre downward to none, or in a few cases actual reductions.

In these tests, treatments consisted of a 1-minute dip of the seed tubers in streptomycin formulations and fungicides, alone and in combinations. Streptomycin was used at 100 parts per million, spargon at 1 lb., phygon at 2 lb., and captan at 1 lb. per 20 gallons of water. Nabam was used at 1 pint to 30 gallons, and 10% ferbam with 1% streptomycin was applied as a dust to freshly-cut seed. Growers may follow the manufacturers' directions in applying these materials.

Stands of plants were usually improved by the treatments, and in some cases, vine growth also was improved, Dr. Fink reports. In several cases yields were increased where stands were not improved.

★

Research trials at Pennsylvania State University show that careful adherence to the following details is needed for good results in use of basal sprays for woody brush control:

1. The base of the stem from the ground line up to 12 inches must be encircled by the spray.

2. High volume of spray must be applied to the lower 12 inches of stem at the ground line. At least 2 to 3 gallons per stem is needed, to cause a generous rundown to the root collar zone.

3. Spraying for certain hard-to-kill species must be done in the proper season. This has proved to be winter for scrub oak and summer for aspen. Less resistant species appear to be killed equally well at any season.

★

A state-wide study of the fertility of soils of West Virginia is being

conducted by the West Virginia University Agricultural Experiment Station and the Soil Conservation Service. Information derived from the study will be of value in making recommendations concerning fertilization, which is exceptionally important since soil fertility is the factor most likely to limit crop production

in West Virginia, according to the experiment station. Samples of the major soil series of the state are being collected by the soil mapping personnel of the Soil Conservation Service. Surface and subsoil samples are collected from untilled and uncleared land wherever possible, or from old fence rows, untreated pastures, and other areas where the soil has not been disturbed for some time. Care is taken to obtain samples that have received no lime or fertilizer treatment. As samples are collected, the SCS workers carefully note surrounding vegetation and other environmental factors. Samples of each series are taken from several sites so as to obtain more representative results of the survey.

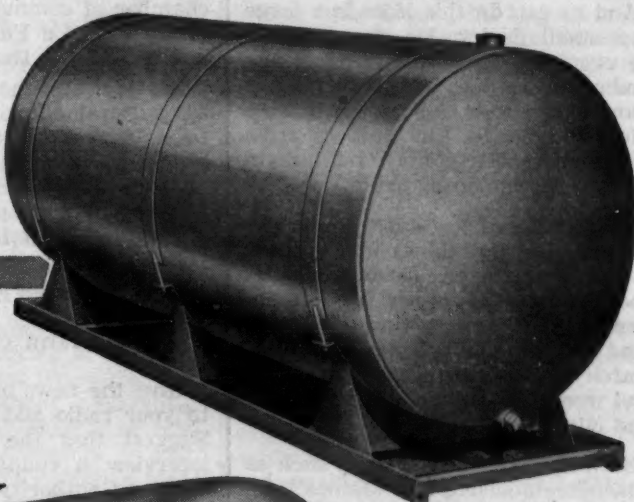
Chemical analyses of the soils are being made by soil scientists of the experiment station. Samples are analyzed for organic matter content, available phosphorus and potassium, total nitrogen, acidity and other factors.

The researchers have found that more than 85% of the 150 surface samples tested so far have been very low in phosphorus. Only 15% contained more than 20 lb. per acre.

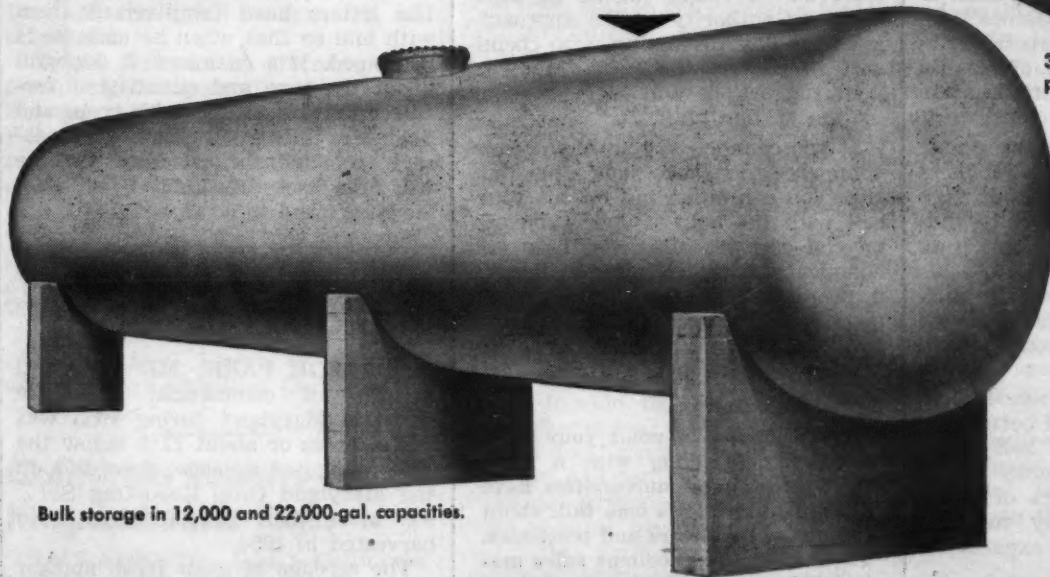
Shallow upland soils contained the least phosphorus, and bottomland soils contained the most. Organic matter content ranged from 0.86% on a Lakin loamy fine sand to 8.39% on an Atkins silty clay loam. The Lakin soil is dry and sandy, while Atkins is a poorly-drained bottom soil.

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Spring Meetings Give Farm Supply Dealers Chance to Cash in on Valuable Publicity

By AL. P. NELSON
Croplife Special Writer

Right in the palm of your hand lies the opportunity to get some free and valuable newspaper publicity for chemicals and fertilizer in your area.

I refer to the Farm Institute Meeting wherein all farm groups, aided by businessmen, put on a big Farm Day for rural people. I also mean that Spring Fertilizer and Farm Chemicals Clinic which every fertilizer dealer can stage by himself, if he so wishes.

And he can do this if he is a large or a small dealer. He can schedule the event and pro-rate the cost depending upon his budget. And the chances are that he can get some valuable help in this respect from his suppliers. They may aid him in bearing the expense, too.

The reason I lay such emphasis on these spring shows and clinics is that fertilizer, seeds, garden tools and pesticides are front page news from February through June. And if you don't believe it just watch how newspapers, both daily and weekly, play up such institutes and clinics.

Even the large newspapers such as Milwaukee Journal, Des Moines Register and Tribune, Minneapolis Tribune and others give a lot of play to agricultural meetings in their state editions.

Now here is an important point: you do not find these newspapers giving the same amount of front page space to merchandise such as electrical appliances, hardware, shoes, furniture, groceries, tractors, bottled gas and other items. Why? Because such products previously mentioned are old and established and no longer have news value as such.

But the use of greater amounts of fertilizer, the greater and better use of pesticides, the use of soil fumigants is new stuff for many newspaper readers, and editors of those publications play up any meeting which features talks by experts on these items.

Take for example a recent farm institute which was held at Watertown, Wis. by farm groups and business men. It was a day long affair with many speakers scheduled. Yet here was a headline on one front page news story in the local daily:

"Insect Control to be Topic of Institute Here."

The news story went on to say that among other speakers of the day would be E. H. Fisher of the Wisconsin College of Agriculture speaking on "Farm Insect Problems and Their Control." Just think of the valuable publicity for insecticides in a story like that. What other industry can get front page publicity in this manner, and have it disseminated throughout the entire rural trade area? Publicity of this type is worth a great deal to the average farm chemicals dealer in an area like this.

The next day in the same newspaper there appeared another front page news story with the headline, "Farmers Will Hear Expert on Weed Control..." The story told how Don Peterson of the Wisconsin College of Agriculture would talk on "New Weed Control Practices, Including Quack Grass and Grain Varieties."

Pick up almost any newspaper in any community during February to May or June, and you'll see

similar stories about public and individual dealer farm meetings. And you'll see fertilizer, weed killers, seed inoculation, pesticide controls, etc. mentioned in just about every headline. This is because these products are relatively new on the agricultural scene in their present type of application... and farmers are curious and interested in these products and their uses.

Most certainly every fertilizer and insecticide dealer should see to it that his town or city, through its chamber of commerce or some other group stages a Farmers Institute or a Farm Clinic Day.

See to it also that some well known agricultural officials are on hand to talk. Suggest that they include on the program talks about fertilizer and other chemicals. That will insure such talks front page publicity, including pictures in most instances.

And see to it that local newspaper editors are given good, accurate pre-farm day stories, in which fertilizer and other farm chemical facts are used.

Give the news of such a farm day to your radio and television station. Suggest that the television station interview a county agent or some other ag authority on the approaching farm day, discussing farm chemicals in use on the farm. Many of your suggestions will be grabbed up by the station staff.

If you cannot get your chamber of commerce to sponsor such a meeting, then you can either put on one yourself with the help of your suppliers, or you can get other fertilizer and chemical dealers to join you in such a promotion. You'll also get front page publicity on a deal like this, if you stress some county agent, ag teacher, etc. as a speaker on farm chemicals.

Take a look at what your state university is doing with a farm week idea. Most universities have prominent speakers who talk about the use of fertilizers and pesticides. Their talks are excellent sales material for good fertilizer and good pesticides. Get copies of such speeches for your use, post newspaper clippings of their speeches on your bulletin board.

Show the farmer that modern day fertilizers and pesticides are big stuff so far as the press and the public are concerned. This will encourage the farmer to learn more about these products and their use in helping him to make a greater profit using less land.

Remember, farmers are anxious to learn more about fertilizer and other chemicals. They will turn out in numbers for such a meeting. Cash in on this great farmer interest now. Make hay while the sun shines. It may not always shine so brightly.

Tolerance Levels Set For Lindane, Thiram

WASHINGTON — The Food and Drug Administration has approved residual tolerance levels for lindane and thiram on certain fruits and vegetables.

For thiram the federal agency has granted a residual tolerance level of three parts per million when used on apples. For lindane FDA has set a residual tolerance level of 10 parts per million in or on mushrooms.

PENNSYLVANIA DEALER

(Continued from page 9)

tunities that await him in cash crops," says Mr. Huber. "Tomatoes, lima beans and tobacco are termed cash crops because buyers pay immediate cash for these products. Other products have to be marketed by the farmer, taken to jobbers or other outlets that means a cash hold-up. As a result, we can afford to extend considerable credit to farmers raising cash crops and this brings us added business."

Dry fertilizer is used practically predominantly throughout this Central Pennsylvania region. Tobacco is one of the heaviest crops raised, but the demand for the other cash crops has attracted many farmers to them as well. Mr. Huber promotes cash crops to farmers with his consistent mailing campaign.

"When tobacco planting time comes around, or for tomatoes or beans, we make sure that our mailing pieces promote these crops to the farmer," says Mr. Huber. "If he had in mind planting other crops, the discussion that we present in our letters helps to sway him. Our letters tell the farmer how much he should plant, the cost of raising crops per acre and his approximate return. Of course, good crop raising by using the fertilizer we handle gets a big play in this letter."

Prior to the fall and spring seasons, Mr. Huber begins making personal calls on his customers and prospects. His letters have familiarized them with him so that when he calls he is welcomed. If a customer is doubtful about the type and quantity of fertilizer that he needs for his crops and field, Mr. Huber will make the necessary recommendation adding that he will take back any unused fertilizer. He hasn't had to do so yet.

Maryland Vegetable Crop Output Decreases

COLLEGE PARK, MD. — Total acreage of commercial vegetable crops in Maryland during 1955 was 94,740 acres or about 11% below the 1954 harvested acreage, according to the Maryland Crop Reporting Service. More than 106,000 acres were harvested in 1954.

The acreage of most fresh market crops was slightly higher than in 1954, but a substantial reduction in the harvested acreage of processing crops, particularly sweet corn, brought the total harvested acreage below 1954. Much of the production drop resulted from the early summer drouth and the extensive damage created by the rain and strong winds of the August hurricanes.

In terms of dollars and cents, production of fresh market crops brought 4.3 million dollars compared to nearly 5.6 million a year earlier. This drop was due in part to bad weather and a general drop in prices paid to the farmer.

Acreage and production of most processing vegetable crops were less than in 1954. The most significant reduction was in sweet corn acreage. It showed a drop of 8,200 acres from 1954 or 24%. Harvested acreage of other processing crops was also down except for asparagus, tomatoes and green peas. Total spinach production was below 1954 due to smaller acreage.

Most other processing vegetables were damaged by the August hurricanes. Tomatoes were the hardest hit, but production of limas, snap beans and cucumbers for pickles was also lowered. Total value of processing vegetables in 1955 was 7,286,000 dollars or 27% below the 9,954,000 for 1954.

"We have been very successful in using the lay-a-way plan for fertilizers," says Mr. Huber. "It is a new twist in our business. During certain times of the year, we can give our customers a good price on fertilizer, and we will sell them specific quantities on the lay-a-way basis. They pay us a certain amount at pre-determined periods, and we keep the fertilizer in our warehouse for them. They don't have to load up their own barns or warehouses therefore until they are ready to use it. Then they can draw from us in quantities that they need."

"This doesn't mean that we have to keep each farmer's lay-a-way order in stock. As our fertilizers keep turning over consistently, any farmer can get whatever quantity he needs when he needs it. In the meantime, we get our customers to pay us regularly and we are assured of their fertilizer business."

One of the best means of influencing prospects to change over to Mr. Huber's line of fertilizer is by showing them pictures illustrating before and after the spreading of the fertilizer on a customer's field. In addition to these photos, Mr. Huber has letters of commendation from customers that attest to the growth of their crops.

"We aren't praising ourselves or blowing our own horn when we show this literature to prospects," says Mr. Huber. "What we try to do is to sell our fertilizer to these prospects in as impressive a way as we know how yet taking up as little of their time as possible. We can then keep up our conversation and can usually interest a prospect in our fertilizer lines."

When certain prospects insist that they don't need fertilizer, Mr. Huber asks them if it would be satisfactory to them if he made a small investment in their field. He will send around a store employee who will spread fertilizer over a certain portion of the field and then let the farmer decide for himself if the service was worthwhile. Mr. Huber seldom gets a turn-down on this offer.

"We usually don't get any of the farmer's business during that season," he says, "but when the next one comes around, the farmer is already calling on us. Inevitably, the field portion covered by our fertilizer was extremely successful."

Mr. Huber opens the door to farmer sales by showing the farmer's wife how fertilizer will help her small flower garden or personal plants. When he comes across a prospect whom he feels will make a sizeable fertilizer customer, he pays his initial visit on the housekeeper. He finds out if she is using fertilizer on her plants and offers to loan her a spreader and a quantity of fertilizer free just for her to test it out. Mr. Huber deduces that if the farmer's wife becomes enthusiastic with his products, reaching the farmer is much easier.

When women come into the store to redeem their cards for the novelty gifts offered by Mr. Huber, this is the best time to find out if they are using fertilizer on their gardens or plants. Then when he pays a visit on them, he gets to see the farmer. No pressure is applied yet surprising sales results are enjoyed.

"Our policy is to keep all our old customers and constantly keep hunting for new ones," says Mr. Huber. "Of course we can't get their business the same season, but we are practically assured of it the following season. And this customer growth has helped us to develop a sizeable fertilizer business."

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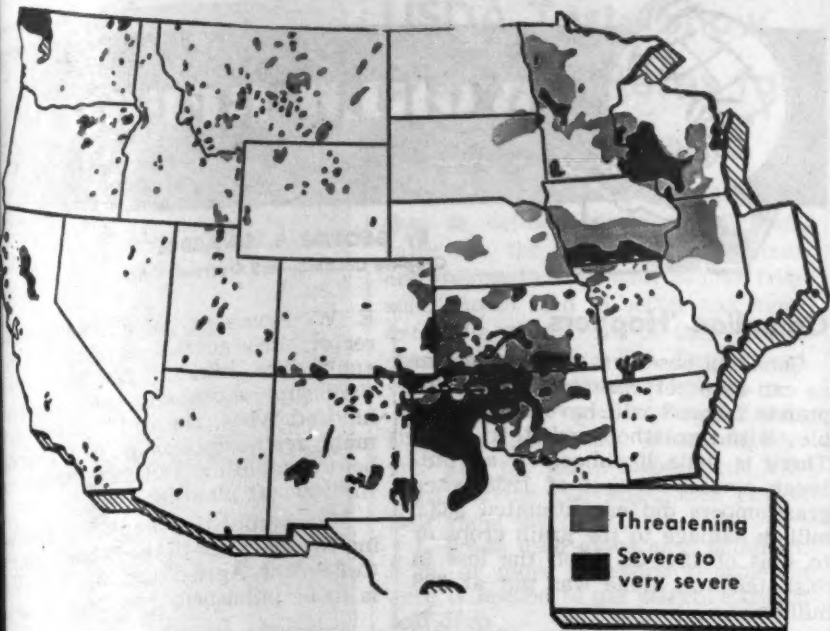
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GRASSHOPPERS ON THE MARCH—The above map, prepared by the U.S. Department of Agriculture, shows where grasshoppers are threatening to the greatest extent this season. Range is threatened chiefly in Texas Panhandle, eastern New Mexico, western Oklahoma, southern Kansas, southeastern Colorado, parts of Montana and California. Croplands are threatened in parts of northern Texas, northern Oklahoma, eastern Dakotas and Nebraska, and Missouri, Iowa, Minnesota, Wisconsin, Illinois and Indiana.

Insects Cut Vermont Farm Profits About 10 Million in 1955

BURLINGTON, VT.—Insects cost Vermont farmers \$10,300,000 during 1955, George MacCollom, extension entomologist at the University of Vermont, estimates. He said an amount equaling about 10% of all agricultural income in Vermont was lost due to damage by insects to livestock, poultry and other farm enterprises.

"Dairy farming alone lost over seven million dollars," he said. "Biggest enemies are pests like horn flies, stable flies and other biting flies in the summer, and mange and lice in the winter."

"Poultry lost over \$850,000 from damage of lice and mites while cattle enterprises lost over \$800,000. Discomfort losses due to irritation and annoyance cannot be measured completely in dollars and cents even if we can see them reflected in the milk pail and egg crate."

"This means that there was an average loss of about \$600 per farm in Vermont during 1955. Farmers can cut their share of that loss with control measures that will mean money in their pocket."

Recommendations for Dormant Sprays Are Made for Michigan

EAST LANSING, MICH.—The use of dormant sprays to halt strawberry hull rot is being recommended by Robert H. Fulton, Michigan State University plant pathologist, based on the result of research work done in Southwestern Michigan last season.

Mr. Fulton specifies dormant spray because in his research he found that the first infection of hull, or stem-end rot took place when the new leaves and sepals first emerged from the crown in early spring. A dormant spray, he says, of either organic mercury or lime-sulfur (at 2½ gal. per 100) will knock out most of the rot organisms overwintering on the old leaves and will serve also as a preventive against the disease.

As a follow-up to the dormant spray, Mr. Fulton suggests fixed copper sprays just when the new leaves are emerging from the crown, and again when blossom buds are one-half inch or more out of the crown.

The new recommendation, however, probably cannot be followed in orchards that are mulched, he points out. This summer, Mr. Fulton expects to do additional research in the strawberry fruit belt.

Chairmen Named for Chemical Progress Week

BOSTON—Six New England state chairmen have been named to prepare for the observance of the third annual Chemical Progress Week, April 23-28, sponsored by the Manufacturing Chemists' Assn.

Regional Chairman Robert K. Mueller of Springfield, Mass., vice president of Monsanto Chemical Co. and general manager of its Plastics Division, announced the following appointments:

Maine, James C. Totman, vice president, Northern Chemicals, Inc., Searsport, Maine; New Hampshire, Robert W. Polley, technical director, Nashua Gummed and Coated Paper Co., Nashua, N.H.; Vermont, Walter Edsall, Goodyear Tire and Rubber Co., Windsor, Vt.; Massachusetts, Charles R. Puliafico, Webco Chemical Co., Webster, Mass.; Connecticut, Walter L. Elwood, Charles Pfizer & Co., Inc., Groton, Conn., and Rhode Island, Irving G. Loxley, branch manager, Heyden Chemical Corp., Providence, R.I.

California Reports on Khapra Beetle Fight

SACRAMENTO, CAL.—California has spent \$600,000 in an effort to eradicate the khapra beetle, it was reported recently by the California Bureau of Entomology.

The report says that the beetle is suspected of having come into the state in 1946. But it was not until 1953 that it was identified as a storage pest.

Out of the 20,000 premises inspected, only 209 were found to harbor the beetle, according to the report. Over one third of all known infestations, representing over two thirds of total cubic content, have received treatment and have been removed from the infested list. Priority treatment was extended to those premises termed distribution center, that is, warehouses and feed mills, in order to reduce possible spread.

The use of methyl bromide has proven effective in the fumigation of feed grains, both sacked and bulk storage, the agency reports. However, this fumigant has presented a problem when used on planting seed. Studies are under way to determine tolerances which will not destroy germination.

The \$600,000 spent on the khapra beetle represents less than one fourth of 1% of the annual farm value of the major crops being protected, the report says. If accepted as an established pest, a 1% loss would then equal over \$2 million a year.

Farmer Reports \$10 Return for Each \$1 Spent for Anhydrous

MEMPHIS—A Mississippi farmer, entering the Agricultural Ammonia Institute's Success Story Contest, reports dividends of \$10 for each \$1 spent for anhydrous ammonia fertilizer in 1955. The farmer, J. H. Pruett of Lyon, Miss., harvested over 3½ bales of cotton per acre on a five-acre tract. His story was endorsed by R. P. Lewis, county agent.

Mr. Pruett reported he put down 100 units of nitrogen in the form of anhydrous ammonia on sandy loam land on April 10, 1955. The land had been subsoiled the previous fall. The cotton was planted during the first week of May, 1955, and received two treatments for thrip.

On June 25, it received a side-dressing of 65 units of nitrogen in the form of anhydrous ammonia. Insect control for boll weevils and boll worms was begun a month later. The cotton was irrigated twice in later summer, defoliated Oct. 5, and harvesting begun 15 days later.

Mr. Pruett based the value of the anhydrous ammonia fertilization on a check against a nearby field where ammonia applicator knives stopped up on a number of rows. "From the present price of cotton, after deducting the cost of fertilizer, the profits would equal about \$140 or \$10 for every fertilizer dollar spent," he said.

Cotton is one of nine classifications from which the institute is receiving entries in its Success Story Contest. Others are corn, wheat, vegetables, pasture, rice, small grain and miscellaneous crops. Ammonia must have been used in the entrant's plant food program.

In each category of the Success Story Contest, there will be a first, second and third place winner. They will receive \$100, \$50 and \$25 savings bonds respectively. The contest is open to any farmer, club boy or girl, or any user of anhydrous or aqua ammonia.

Success stories based on 1955 crops must be received by the institute before April 1, 1956. Stories telling of 1956 crops should be mailed before Jan. 1, 1957. All entries should be between 200 and 500 words. They should include the following pertinent information: crop, size of field, type of soil, complete fertilizer application, soil testing, irrigation, supplemental irrigation, dry land conditions, general insect program, harvest data, yield data, check plot, source of ammonia, and calculated profit from the use of the ammonia.

Each story must be endorsed by at least one of the following: county agent, vo-ag teacher or ammonia distributor. Photographs may be included.

Success stories may be submitted to the Agricultural Ammonia Institute, 304 Claridge Hotel, Memphis 3, Tenn.

Michigan Orchards Lacking in Magnesium, Seven-Year Study Shows

EAST LANSING, MICH.—A seven-year research project shows that nearly half of the orchards in Michigan are lacking in magnesium.

A. L. Kenworthy, horticulture researcher at Michigan State University, bases that conclusion on a seven-year sampling of leaves to determine fertilizer needs. He says that the first tests in 1948 showed all leaves to contain sufficient amounts of the nutrient. But since levels have gradually dropped until about 45% now show a magnesium shortage.

Magnesium deficiencies, he explains, cause reduced yields, inability of trees to produce spurs and build a proper framework, along with poor quality and premature dropping.

Texas-Adams Firm Buys U.S. Sulphur Co.

NEW YORK—Sale of United States Sulphur Co., Inc., Dunton, Colo., to Texas-Adams Oil Co., Inc., Denver, was announced March 14 in a joint statement by H. A. Hershfield, Jr., president of United States Sulphur, and William J. McCarthy, president of Texas-Adams.

United States Sulphur Co., Inc., was owner of one of the country's largest known surface sulphur deposits. The type of ore mined at its Dolores County, Colo., property is crushed and sold without further treatment as a soil additive for western grain and truck farms. The ore is said to be composed of 30% sulphur, with the remainder consisting of fertilizing elements and inert matter.

Mr. McCarthy said the ore body had been estimated to be equivalent of 500,000 tons of pure sulphur, valued accordingly at \$6 million when fully developed. Negotiations are under way to acquire 26 additional acres in the same area, which would boost ore reserve to more than three million tons.

The mines are currently of intermittent operations because of winter weather conditions, Mr. Hershfield said. It is planned to operate the mines to produce from 100 to 500 tons a day.

As a soil additive, the surface ore will retail at about \$60 a ton. It is claimed to both fertilize and alkalize the soil where used.

United States Sulphur has already contracted for mining and crushing equipment. Warehouses, processing and packing facilities and buildings in nearby Dolores have been leased.

Should Texas-Adams desire to produce sulfuric acid by steam reduction, an additional market was said to be available. Atomic energy refining plants have approached United States Sulphur with offers to buy purified sulphur for this purpose, according to the statement by Mr. Hershfield and Mr. McCarthy.

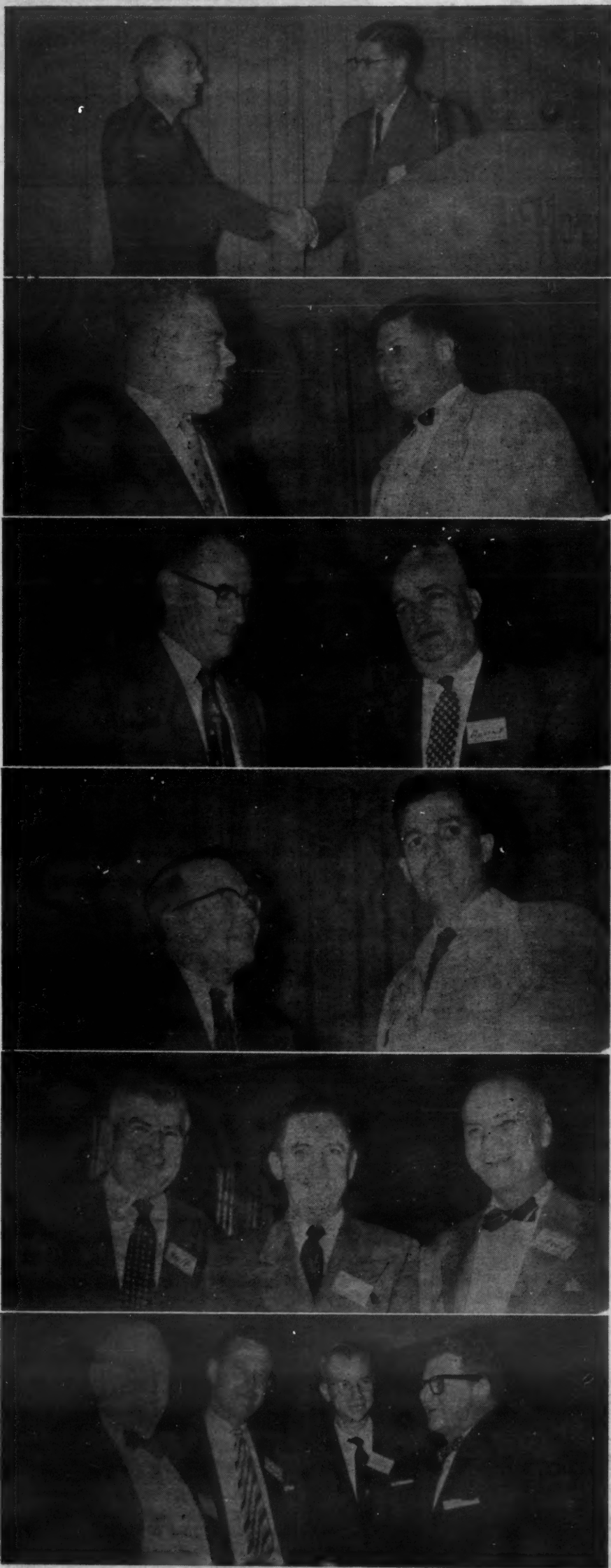
The three patented claims involved in the sale were formerly operated as gold and silver mines. Presence of sulphur caused gas fumes, which made further underground mining impossible. The following switch to sulphur required capital and applicable mining experience, and hence the purchase by Texas-Adams, it was explained in the joint statement.

Control of Aphids Augmented by Lady Beetle from India

WASHINGTON, D.C.—A lady beetle from India, *Chilomenes*, is considered a welcome import by U.S. Department of Agriculture entomologists. The insect is described by Allen G. Selhime of USDA's Fruit Insect Field Station, Orlando, Fla., as a little insect with a big appetite for many of the serious pests of fruits, vegetables, and ornamentals under culture in Florida. In other tests at Orlando, and at Brownsville, Texas, where USDA scientists are rearing it as a potential enemy of the cotton aphid, *Chilomenes* has proved it can build up big populations in a hurry.

Indian scientists who studied this helpful insect in their country reported that a single lady beetle adult devoured 16,321 aphids in six weeks. In their laboratory, two lady beetles laid a total of more than 6,000 eggs.

Mr. Selhime has been studying this insect in the Orlando laboratory since last May. He has found it easy to rear—as long as it is kept well supplied with aphid-infested plant leaves. The lady beetle develops from egg to adult in about 11-12 days and lives as an adult about six weeks, he reports.



WITH THE SOUTHWESTERN ENTOMOLOGISTS—At the fourth annual meeting of the Southwestern Branch, Entomological Society of America, Ft. Worth, Texas, Feb. 20-21, Croplife's camera snapped a few pictures of people in attendance. Top row: Dr. J. C. Gaines, Texas A&M College, College Station, Texas, new chairman of the SW Branch, left, receives the good wishes of his predecessor, Douglas C. Earley, Port Fertilizer & Chemical Co., Los Fresnos, Texas. Second photo: B. Thomas Snipes, Chemagro Corp. and C. M. Meadows, Southwest Spray Corp., Waco, Texas. Third photo: W. S. McGregor, Kerrville, Texas and J. Everett Bussart, Velsicol Chemical Corp., Chicago. Fourth: Lynn Brunn, Atlas Powder Co., Wilmington, Del. and H. E. ("Skip") Meadows, Houston, Texas. Fifth: Lyle Hill, Reasor-Hill Co.; P. J. Reno, Hercules Powder Co., Dallas, Texas and Dr. Al Weed, Olin Mathieson Chemical Corp., Baltimore. Lower photo: Horace Lee, Niagara Chemical Div., Food Machinery & Chemical Corp., New Orleans, La.; Irvin Schroeder, Agricultural Chemicals Co., Bryan, Texas; George Dees, Agricultural Chemicals Co., Llano, Texas and Cameron Siddall, Pennsylvania Salt Mfg. Co., Bryan, Texas. A story of the meeting appeared on page 1 of the March 5 issue of Croplife.



WORLD REPORT

By **GEORGE E. SWARBRECK**
Croplife Canadian and Overseas Editor

Canadian 'Hoppers

Canadian observers say that as far as can be ascertained right now, the prairie farmers will have little trouble with grasshoppers this year. There is little likelihood of an outbreak similar to that of 1938 when grasshoppers did an estimated \$33.5 million damage to the grain crops or to that of 1949-50 when the loss in Saskatchewan alone was put at \$28 million.

A fall survey of grasshopper eggs indicated that if the spring should be dry, there could be a considerable build-up of infestation in southern areas of Manitoba, Saskatchewan and Alberta. Much will depend upon seasonal conditions, according to an official of the Manitoba agricultural department. If rainfall is abundant this spring and summer, little trouble is expected, but if the summer is hot and dry, the hoppers will have to be controlled.

Officials have already taken precautions. A large supply of spray and dust insecticides are on hand and will be placed at strategic points in the spring so that farmers can get at them quickly if the need arises.

Norwegian Plant

The new complete fertilizer plant built by Norsk Hydro at Glomfjord, Norway, has been operating on an experimental basis for several months. Success appears to be assured, according to company officials.

The estimated annual capacity has been assessed at 100,000 tons of complete fertilizer and 30,000 tons of calcium nitrate. All can be absorbed by the Norwegian market. The company also produces complete fertilizer at its Heroya plant, capacity there being in the region of 50,000 tons a year.

Norsk Hydro now has a total annual production corresponding to 205,000 tons of nitrogen. Denmark and Sweden are the largest markets for Norwegian calcium nitrate, taking together about 70% of the total.

Indian Research

A new method for the production of a mixed nitrogen-phosphorus fertilizer has been evolved by research men at the National Chemical Laboratory, Poona, India, according to an official report.

The method, it is claimed, opens up possibilities of utilizing surpluses from the caustic soda industry. The fertilizer is produced by adding rock phosphate to commercial hydrochloric acid at a temperature of 40-45° C. followed by the addition of ammonium sulfate. On grinding, the final product is a free-flowing powder, stable to weather changes and containing 7.4% and 15% of nitrogen and phosphorus respectively.

South African Disease

South Africa's corn crop is threatened by a new ailment called, for want of a better term, "yellowing." The young plants develop yellow streaks in the leaves, and the disease has caused total crop failure in some cases; in others reduced yields.

The disease was first observed in 1954 on soil which had lost its fertility, mainly on sandy soils which had been cropped for years without the application of fertilizer.

As a first step towards cure, K.

E. W. Penshorn, an agricultural director, has advised farmers not to apply any mineral fertilizer other than superphosphate, basic slag and kindred types. He also says that the main fertilizer should be broadcast before planting and not applied in the rows at planting time.

Meanwhile, the problem is receiving the attention of the Potchefstroom College of Agriculture and a report is to be published in the near future.

Mexican Progress

Mexican chemical production is advancing steadily. This year the production of sulfuric acid is expected to be increased by 160 metric tons a day at six new plants built close to the centers of consumption, at a total cost of \$3 million.

Production of sulfuric acid rose from 33,365 tons in 1947 to 125,000 tons in 1954. Today the output is reported to be in the region of 360 tons a day.

Caustic soda production is also increasing though 25,000 tons have to be imported every year, mainly from the U.S. The U.K. and Germany share about 10% of the market, the last named country being a recent arrival in Mexican trade.

Domestic production has now reached 26,500 tons a year, 20,000 tons coming from one plant alone. The National Bank of Foreign Commerce, a government agency, estimates that if Mexico is to become self-sufficient in caustic soda, an investment of \$8 million will be required.

Anhydrous Ammonia

Interest in anhydrous ammonia still rides high and favorable reports from U.S. sources are prompting trials in a number of other countries.

First trials of anhydrous ammonia in Australia are to be held in New South Wales this year. It is to be tested on corn, and the two trial areas to which it will be applied have already been sown. Results of the trials are expected to be available in July.

Backing the project is the New South Wales Department of Agriculture which has carried out many trials with other types of nitrogenous fertilizer. Much is expected from the present tests, officials say, for they have been much impressed by the American reports on usage.

In Canada, the Manitoba Department of Agriculture has decided to carry out extensive trials on anhydrous ammonia next summer. An official says that it has not been widely used in the province in the past, but here again much is expected of it because of enthusiastic reports from below the border.

Insecticide Broker Gets Three-Year Contract

BALTIMORE, MD.—Chaimson and Robinson, Inc., Baltimore, have been awarded a three-year contract by Cook Chemical Co., Kansas City, for exclusive sale of the latter's insecticidal products.

Ralph C. Martin, Cook Chemical Co. president, says that this is the first step in the company's program of "cementing broker-principal relations." He commented that the three-year contract tends to strengthen the organization and leads to a more stable sales program.

USDA Tests Show Optimum Rates to Apply Defoliants

WASHINGTON, D.C. — Research that is defining proper application rates for the cotton-plant defoliant and regrowth inhibitor, amino triazole, should lead to better and more extensive grower use of this organic chemical this year, U.S. Department of Agriculture scientists believe.

Cooperative studies between USDA's Agricultural Research Service and the State Experiment Stations serving the Mid-South Cotton Belt show that:

1. When used alone as a defoliant, 3 lb. or more of amino triazole an acre is needed to get effective cotton leaf drop.
2. When used alone as a regrowth inhibitor (to prevent new plant

growth after defoliation and before harvest is completed), at least 1 lb. an acre of the active chemical is needed.

3. When used in combination with other defoliants, such as sodium chlorate-sodium metaborate or magnesium chlorate, addition of amino triazole at the rate of 0.75 lb. an acre allows the grower to reduce by half the dosage of the other defoliant normally required when used alone.

In carefully measured studies in the Mississippi Delta during 1955, cooperating scientists found that amino triazole, used alone as a defoliant at a 1-lb.-an-acre rate, caused only about 70% defoliation. When the dosage was tripled—to 3 lb. an acre—about 80% defoliation resulted.

Tests of the ability of amino triazole to prevent cotton-plant regrowth during the harvest season have shown wide variation in results during the past three years. Generally, the higher the rate of application, the better the regrowth control achieved. But one year's treatment with a half-

pound-per-acre rate gave as good regrowth control as another year's treatment with 1½ lb. an acre. It was thus concluded that growers should apply at least 1 lb. an acre to take care of these possible variations in control.

Studies of defoliant mixtures incorporating amino triazole are indicating that the amount of the other defoliant in the mixture can be considerably reduced when incorporated with 0.75 lb. an acre of amino triazole.

However, trials last summer to determine the minimum amount of defoliant required in mixtures with amino triazole showed that as little as .3 gal. an acre (compared with the normal rate of 7 to 8 gal. an acre) would increase the percent of defoliation achieved over that to be expected from amino triazole alone. Scientists believe that the economical, effective dosage lies somewhere between 0.3 gal. and 3½-4 gal. (half the normal per-acre rate). Further research is planned on this treatment, USDA says.



M. L. Anderson

M. L. Anderson New District Manager for Velsicol Ag Chemicals

CHICAGO — M. L. "Andy" Anderson, Velsicol sales representative in Texas, New Mexico and Oklahoma for the past four years, has been appointed Southwest district manager for Velsicol's Agricultural Chemicals Division. He will have headquarters at Austin, Texas.

Before joining Velsicol in 1952, Mr. Anderson was manager of aerosol sales for the Virginia Smelting Co. He graduated from the University of Florida where he received a bachelor science degree in entomology.

James G. Horsfall to Visit New Zealand

NEW HAVEN, CONN.—Dr. James G. Horsfall, director of The Connecticut Agricultural Experiment Station, leaves for New Zealand March 29. The station Board of Control has granted leave to Dr. Horsfall, internationally known plant pathologist, to consult with growers and scientists in New Zealand, at the invitation of the New Zealand Fruitgrowers Federation, Ltd.

The Board of Control has granted leave also for Dr. Horsfall to return from New Zealand via Australia, India, Austria, Germany and Holland. This will give him opportunities to consult with scientists around the world. He has been invited to lecture in Italy, Austria, Holland and England. Dr. Horsfall will also address groups of scientists at Denver and Modesto, Cal., en route to New Zealand.

Paraphrase Leads to Wrong Conclusions

A story concerning the Gohlke Phosphate and Fertilizer Co. of Kansas, appearing in the Feb. 6 issue of CROPLIFE contained a paraphrase which readers have pointed out created an erroneous impression. The Nitrogen Division of Allied Chemical & Dye Corp. expects to erect a 25,000 gallon storage tank for 32% nitrogen adjacent to the Gohlke plant. Contents of this tank can be transferred directly to the supply tanks for the plant.

Ernest M. Harper, Midwest sales supervisor for the Nitrogen Division, says that the division is not erecting a 25,000 gallon tank for Mr. Gohlke. They are negotiating a direct application program with Mr. Gohlke," Mr. Harper writes. "This would have involved a 22,000 gallon aluminum storage tank for direct application purposes and not manufacturing purposes. . . . Nitrogen Division is not erecting a 25,000 gallon tank for 32% nitrogen."

CROPLIFE's staff regrets this misstatement and trusts that everyone concerned will understand.

Get scab before it gets you or stop it after it strikes

Used as a preventative, Stauffer's CAPTAN 50-W will stop scab before it starts.

Used after scab is first observed on leaves, it will prevent secondary infection, correct the first attack and preserve the leaves in full vigor for nourishment of tree and fruit.

Stauffer's CAPTAN is also making remarkable records for size, color and finish of apples. It is particularly valuable on Golden Delicious and other yellow varieties prone to russetting when treated with other fungicides.

Finally, CAPTAN will stimulate next year's bud formation and has been observed to have a beneficial effect on "off-year" crops.

... and Watch for Powdery Mildew!

A recent sharp increase in this pest is dangerous to many varieties of apples. Cause: elimination of sulfur sprays in recent years. For prevention:

use Stauffer's CAPTAN 50-W with Magnetic "70"

Sulfur Paste through "pink" . . . straight Captan 50-W

subsequently. For eradication: Captan 50-W

with Magnetic "70" through petal-fall . . . then

microfine and 325-mesh sulfurs

for subsequent cover sprays.

Request a Stauffer bulletin

on Powdery Mildew control.



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NAC MEETING

(Continued from page 1)

needs of the chemical industry and other industries with more and better trained personnel is a mutual problem of employers and universities that can be solved only through the continuing cooperation of both parties.

Pointing out that the demand for technically trained men and women today is so great that there are virtually two jobs waiting for every university graduate, Dr. Reitz stressed several aspects of the problem. One aspect, he said, concerns the kind of courses required of students in the professional fields. "We hear that our students are required to take too many courses on subjects not related to the professional field of interest. What does an entomologist care about the thoughts of Plato or the works of Shakespeare?"

"We believe confidently that when our commercial organizations employ an entomologist or a chemist, they want something more than just an entomologist or a chemist. Of course they expect technical competence, but they also want people who have the background to adjust themselves to changing situations, to get along well with other people, and to be handling additional and broader responsibilities as their careers develop."

In a tribute to the agricultural chemical industry, Dr. Reitz said, "It is well known that you have enthusiastically supported our institutional activities in teaching research and extension."

"You have done this with grants, fellowships and in many other ways, including assistance in obtaining legislative appropriations. I make this statement wholeheartedly because we are ever mindful of your significant contributions in so many areas."

John A. Field, Carbide & Carbon Chemicals Co., New York, reminded the group that based on the present rate of growth, agricultural chemicals sales should reach \$1 billion a year by 1975.

Development Costs Up

Mr. Field spoke on the subject "The Agricultural Chemical Industry—A Teen-Ager Growing Up." His talk was concerned with agricultural chemical marketing, with marketing in its broader sense, beginning with the original synthesis of a compound and following it through all the phases of development, through its distribution, to the user.

With the help of large cartoon cards, Mr. Field ran through the following example:

"To obtain one successful agricultural chemical, about 1,800 compounds must be synthesized and run through biological screens. On the average, it costs \$150 to synthesize a chemical and \$200 to run it through biological screens. Our initial research cost is then a total of 1,800 compounds in each of which \$350 is invested.

"Only some 30 of these compounds survive the initial screening, and the cost of the failures must be borne by those that continue. A total of \$10,500 is therefore invested in each of the remaining chemicals." Further laboratory and greenhouse work will cost \$1,000 each, making a total of \$11,500 for each chemical. Only one chemical in 10 will merit further consideration. In each of these adding cost of failures, \$115,000 is invested. Initial field tests will cost at least \$1,000 per chemical, which must be added to the \$115,000.

Only one in three of these compounds will be worth a full scale development effort. So there remain two chemicals that have cost so far \$347,700 each. "To this must be added the \$250,000 developmental cost,

which is made up of field studies, analytical methods and residue analyses, toxicological studies, production, research and pilot plant construction, and costs of securing patents. The total cost of each of the two remaining chemicals is now approximately \$600,000. If only one of the two compounds achieves commercial markets, the full price tag will read \$1,200,000.

"At this cost, no company with a fully coordinated agricultural chemicals program can remain long in business if it cannot so plan and execute its merchandising that it will not only recapture its research investment but also obtain the rewards in profits that its risk and enterprise justify. Bear in mind that the cost of research applies only to the actual testing of compounds for activity in well defined areas of application. In addition the expenditure of funds and effort is needed in other fields of 'blue sky' research. The mechanism of action of chemicals, their effect on growth, flowering, fruit yield and many other questions of a like nature await an answer. Such information will enable us to supply the farmer with even more potent specific and safer pesticides and the improved aids in the future."

Against this background of cost, Mr. Field ran through a list of activities which should follow a research testing program. These included process development, pilot plant studies and adequate engineering.

He broke down the market development program into 10 phases—market study, timing, physical and chemical properties, formulation, biological activity, product specifications, labeling, patent considerations and advertising and publicity.

In commenting on the last phase, Mr. Field said: "When it comes to advertising-publicity, I seriously wonder whether we realize its fundamental purpose. The easy answer is 'to sell materials.' But its purpose is not to sell materials only once, rather, publicity and advertising should build a market."

"We must teach in our advertising. Our customers, the farmers, are intelligent, interested, busy businessmen. But they may not all be experts in entomology, plant pathology or plant physiology."

"Sell Vigorously"

Mr. Field said that there is a great problem of education to be done in the industry, from the research chemist down to the farmer.

"The agricultural chemical industry will grow from teen age into responsible maturity only if we realistically analyze our markets, intelligently develop each new chemical, pursue a vigorous advertising and publicity campaign, merchandise in an orderly manner and sell vigorously and honestly," Mr. Field said.

Dr. S. B. Hendricks, U.S. Department of Agriculture, reported that peaceful atomic energy is now being used in agriculture to speed research on the photosynthesis of plants, on how chemicals react inside plants and insects and to improve food preservation.

He said, however, that we should not expect atomic energy to bring about any revolutionary changes in agriculture. At the same time, he said, the peaceful use of atomic energy in agriculture should not be minimized.

The agriculture department scientist said that experiments with atomic radiation already indicate that one of the nation's most destructive cattle insects, the screw worm, might

eventually be eradicated through the use of atomic radiation.

The screw worm—a tiny parasite which burrows into cattle through cuts or wounds in the hide—has the ability to wipe out entire herds if it gets out of control, and is a constant threat to cattle growers. Radiation of screw worms at the proper time, sterilizes males, making it impossible for them to reproduce, he said.

Similarly, work with atomic radioactive isotopes is bringing closer the day when man will be able to unlock the secret of how green plants convert carbon dioxide and water from the air into carbohydrates, and is greatly adding to man's knowledge both of how chemicals move and react inside insects, and how crop-destroying pests such as wireworms move in the soil.

One important fact already discovered is that the insecticide, DDT, is "disregarded" by some insects and by soil organisms into a non-toxic material, "DDD." This indicates that there is little likelihood of any accumulation of DDT in the soil and gives a key to the reason why some insects can build up DDT resistance. There is also evidence that some other insecticides are broken down in plants into harmless non-toxic materials over a period of time, Dr. Hendricks said.

F. W. Hatch, Shell Chemical Corp., NAC vice president, was chairman of the March 16 session.

Create New Markets

In his semi-annual report, Lea S. Hitchner, NAC executive secretary, ran down a long list of association activities, among them was a program of promotion on an industry basis of expanding and creating new markets for agricultural chemicals.

Mr. Hitchner said that the program to increase the use of herbicides this year will be broadcast on more than 3,500 farm radio programs, and a television short will be presented for the first time.

NAC also is promoting this year radio broadcasts to expand the use of fungicides. A considerable amount of time is being given by the NAC staff to lay the groundwork for sound promotional programs for the use of pesticides on the national road program.

It has been estimated by experts in the highway program that at the end of 10 years there will be a potential market for agricultural chemicals in roadside maintenance of \$20 million, Mr. Hitchner said. This potential includes not only herbicides, but other agricultural chemicals as well.

"In addition there is the field of soil insects, the grasslands program, expanded use of fungicides, aquatic pests, forest pests, pest control in or on animals, etc., all of which, if promoted on an industry-wide basis, should shorten the time of our maturity," Mr. Hitchner said.

Fungi, which annually destroy about 7% of the country's crop and forest productivity and cost the U.S. \$12 billion by deteriorating fibers, plastics, leather and paints, may soon be markedly controlled, Dr. George L. McNew, Boyce Thompson Institute for Plant Research, Yonkers, N.Y., said in a paper prepared for the March 16 session:

"There is every reason to believe that 50% of the damage can, and will, be eliminated within the next two or three decades," he said.

Dr. McNew traced the tremendous strides which the agricultural chemical industry has made in the last two decades, and said these strides were paying off for the farmer.

He told of a test conducted on pea seeds treated with organic fungicides in New York, causing a 20 to 40% yield increase per acre.

He said that the Boyce Thompson Institute feels that the need of expanding our knowledge of fungi is

so great that it is planning a \$200,000 investment in new facilities to conduct further research.

George P. Larrick, U.S. commissioner of foods and drugs, told the meeting that "the passage of the Miller pesticide chemicals amendment and its administration to date was a classic example of the type of harmonious government-industry relationship that all of us seek."

"The progress in this field is monumental. In July, 1954, there were no formal tolerances for spray residues in food; no one knew what arrangements would be made for administering the Miller amendment in a practical manner; some members of your industry were concerned about the effect of the new law on their operations, and a few months later, in the spring of 1955, there was alarm in agricultural circles because of a fear that the law would become fully effective in the middle of a growing season and cause serious disruption of established farming practices."

"Today almost 100 pesticide chemicals have found their place under the Miller amendment for one or more uses through the establishment of tolerances or exemptions. The administrative procedures established under the amendment have proved workable."

Mr. Larrick saluted NAC for its cooperation in making the Miller Amendment workable.

"To teach growers to use pesticides safely as well as effectively is in many respects our biggest job," he said. "It is by all odds the best way to protect the public in this field. It is my hope that NAC can expand its activities in this area, and that the Food & Drug Administration and other agencies in government can cooperate to the full extent that is needed to do this educational job."

Mr. Larrick spoke following the presentation of a proclamation by LeRoy Collins, Florida governor, setting aside the week of March 19-25 as "Food and Drug Law Golden Anniversary Week" in Florida. The proclamation was presented at the meeting by Nathan Mayo, Florida commissioner of agriculture.

USDA Work Described

In a paper on "USDA Programs Affecting Pesticides," Dr. H. L. Haller, assistant director of crops research, Agricultural Research Service, USDA, summarized the work USDA is doing with chemicals to control insects, plant diseases, weeds and nematodes.

He said preventive programs have been launched against 18 major crop pests. Widespread use of insecticides enables economical control of insects "for which there was no control a few years ago," Dr. Haller asserted.

The department of agriculture, he said, has an "effectively coordinated group of workers in research, distribution, regulatory activities and extension."

"I believe we are well organized to carry on the search for new knowledge of pest control."

One of the most effective programs now in operation is the fight against grasshoppers and Mormon crickets, Dr. Haller said.

Discussing the burrowing nematode—a major threat to Florida citrus growers, Dr. Haller said the agriculture department has been "cooperating with the state of Florida in making surveys to determine the presence of the nematode in commercial citrus plantings and in nurseries."

He said that at the beginning of 1956 some 4,000 acres had been infested with the nematode. Planting on an additional 2,000 acres shows symptoms of spreading decline. Infestations have been found in 27 Florida counties, Dr. Haller asserted.

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Revised Acreage Allotments for Tobacco Announced

WASHINGTON, D.C. — The U.S. Department of Agriculture on March 9, announced revised acreage allotments for 1956 crops of burley, fire-cured, dark air-cured, and Maryland tobaccos. This action was taken in compliance with legislation approved March 2, 1956.

The legislation consists of three acts: Public Laws 425, 426, and 427, 84th Congress, relating to acreage allotments and marketing quotas for burley, fire-cured and dark air-cured, and Maryland tobacco, respectively.

The revised 1956 acreage allotments for these kinds of tobacco, compared with the allotments announced for the 1955 crops on November 30, 1955, are as follows: Burley, 309,200 acres, compared with 263,350 acres; fire-cured, 50,200 acres, compared with 42,755 acres; dark air-cured, 20,800 acres, compared with 16,674 acres; and Maryland 53,600 acres, compared with 45,800 acres.

The revised 1956 allotments bring the acreages allotted to most farms for burley, fire-cured, and dark air-cured tobaccos to the identical acreages allotted for the 1955 crops. Under the allotments announced earlier, these acreages would have been cut 15% for burley and fire-cured and 20% for dark air-cured.

In the case of Maryland tobacco, the revised 1956 allotment represents an increase of about 15% over the previously announced allotments for 1956 and brings the allotment to approximately the acreage allotted for 1953, the last year quotas were in effect for Maryland tobacco. (Growers of Maryland tobaccos disapproved quotas for both the 1954 and 1955 crops.)

County Agricultural Stabilization and Conservation Committees will mail notices of the revised 1956 tobacco allotments to farm operators as soon as the necessary work of re-determining individual farm allotments can be completed.

Four Appointments Made In Lion Oil Company's Development Department

LULING, LA.—Four personnel appointments to the development department of Lion Oil Company, a Division of Monsanto Chemical Company, have been announced by J. A. Sherred, director. Malcolm C. Lowe, Peter D. Burland, Charles L. McDaniel and Elizabeth Bailey are the four persons involved.

Messrs. Lowe, Burland and McDaniel have been appointed group leaders of the department, which is located at The Barton Plant, Luling. Mr. Lowe and Mr. Burland will be chiefly concerned with the evaluation of new projects for the division, and Mr. McDaniel will be in charge of product development activities.

Mr. Lowe, a native of Mississippi, was chief chemist at The Barton Plant prior to his present appointment. He was graduated from Louisiana State University in 1942, and joined Lion Oil Company the same year.

Mr. Burland, a member of the research department at Texas City, Texas, prior to being assigned to Lion Oil Company Division, was graduated from Louisiana State University with a master of science degree in 1951. He joined Monsanto at that time.

Mr. McDaniel, a native of Shelby, Alabama, was formerly a supervisor of field technical service in Lion's chemical sales department. A 1944 graduate of Auburn, he joined Lion Oil Company in 1947.

Mrs. Bailey has been with Monsanto Chemical Company since 1951.

SOIL BANK

(Continued from page 1)

ready under way and total farm plans have already been made by the farmers who will be reluctant now to change. If the soil bank were to have been broadly effective this crop year, it would have been necessary for farmers to have an understanding of the alternative choice to planting crops long before they started spring seeding.

It is not believed that any reasonable soil bank payment would be adequate to persuade farmers to forego their previously adopted planting arrangements since the probable level of soil bank payments would not adequately compensate them for planting labor and seed.

This condition is emphasized by an amendment to the pending Senate bill adopted by that body last week when it approved an amendment which in effect would cause an immediate increase in the price support level for oats, barley, rye and grain sorghums for the 1956 crops.

This amendment was introduced by Democratic Texas Senator Price Daniels which primarily says that these crops for 1956 shall be supported at the higher of:

(1) The previously announced price support level for those crops or (2) at a price determined by the Secretary of Agriculture to bear the same ratio to the support price of corn in such area as the feed equivalents of such grains bear to the feed value of corn.

This provision would boost the previously announced support levels for these crops to the following approximate dollars and cents levels for 1956: Oats from 59 to 68¢ per bushel; barley from 93¢ to \$1.04 per bushel, and grain sorghums by approximately 43¢ per hundred weight.

Similar provisions have been adopted in the Senate Farm Bill for corn in another amendment to the bill offered by Sen. Bourke B. Hickenlooper (R., Iowa). This amendment would fix for soil bank calculation purposes a farm reserve acreage base for corn for this crop year and thereafter when approved by producer referendum of 51 million acres.

Under the Hickenlooper Amendment, there would be no acreage allotments for corn in the commercial corn belt for 1956 and the price support minimum levels previously announced for this crop of 81% of parity or \$1.40 per bushel national average basis would remain unchanged.

Unless a conference committee decides to alter this provision, it provides half of the equation which will face the corn farmers this year. Depending on the size of the allowance USDA will make for soil bank contributions, the farmer can now calculate his average corn yields for land for the last three years and when the soil bank payment rate is announced, if the bill passes, he can determine if it is more profitable for him to forego price support and soil bank payments, or to continue to grow and harvest his corn.

Farmers have seen the great benefits of plant food applications on corn land yields and it is believed that USDA will have to raise its sights of a previously estimated 50% of the going price support level times yields as the value of soil bank payment rates if they expect a broad Corn Belt participation in the acreage reserve feature of the soil bank.

For the plant food industry now the big benefits of the Daniels Amendment are those which would automatically require an upward adjustment of the price support levels of the other feed grains for

the 1956 crops. It must be remembered, however, that the bill is still in a formative stage not completed by the Senate and yet to face a conference between that chamber and the House which has passed its own version of the farm bill.

As passed last week, the Carlson Amendment which would adopt a two-price system for wheat on a discretionary basis is seen as somewhat of a hollow victory for the wheat farmers. This amendment offered by Sen. Frank Carlson (R., Kansas) provides 100% of parity to wheat farmers for that part of the crop which is required for the domestic human food market.

The Carlson Amendment would require for the 1957 crop and thereafter a two thirds favorable wheat farmer vote if the plan was to be introduced and after such a majority it would then still be discretionary with the Secretary of Agriculture if he were to implement the referendum.

Should the conference committee revise the Carlson Amendment to make its referendum provisions mandatory on the Secretary of Agriculture, then a prompt White House veto would be forthcoming, top Senate leaders tell Croplife. However, responsible House agricultural leaders expressed doubt that the House would take any initiative in this matter.

Louis H. Wilson to Be on Publicity Committee for FDA's 50th Anniversary

WASHINGTON, D.C. — Louis H. Wilson, secretary and director of information of the National Plant Food Institute, has been named director of agricultural public relations of the 50th anniversary committee in connection with the observance (1906-1956) of the 50th anniversary of the Federal Food, Drug and Cosmetic Act.

Mr. Wilson was formerly secretary and director of information of the American Plant Food Council, Inc., Washington, before it consolidated with the National Fertilizer Assn. to form the National Plant Food Institute.

Announcement of Mr. Wilson's appointment to work with the FDA anniversary committee was made by Eugene H. Holeman, president of the Association of Food and Drug Officials of the U.S. and superintendent, Division of Foods and Drugs, Tennessee Dept. of Agriculture.

NITROGEN PLANT

(Continued from page 1)

monia produced at Lake Charles will be sold as fertilizer, the announcement states. A small amount will go to industrial plants for use in making plastics and various petrochemical products.

The ammonia will be marketed by Mid-South Chemical Corp., Memphis, Tenn., which also is owned jointly by Continental and Cities Service. Mid-South distributes ammonia through more than 150 stations to markets in Alabama, Mississippi, Arkansas, Louisiana, Texas, Missouri, Kentucky, Tennessee, Iowa, Illinois and Indiana. The firm transports ammonia by river barge, tank car and truck and plans to expand its marketing operations to include much of the Central United States.

Organized in 1954 by Cities Service and Continental, Petroleum Chemicals, Inc., presently operates a butadiene plant at Lake Charles acquired from the Rubber Producing Facilities Disposal Commission in 1955 and now undergoing expansion.

PEA CROP GRASS CONTROL

ROCHESTER, MINN. — Canners need not worry about stage of pea growth in spraying for grass and broad-leaved weed control. Hit the weeds as soon as they come through the ground—except right after a rainy spell. That's the prescription given by E. Nyland, University of Minnesota horticulturist, at the Canners' Fieldmen's Short Course here recently.

Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Northeastern states.

Soil Bank May Be Boon To Pesticide Industry

Adoption of the proposed federal soil bank plan has been hailed as a potential boon to fertilizer sales, since it offers a potential market in the area of soil conservation and grassland farming. Pesticide industry people are asking whether or not the plan would help or hinder sales of insecticides. A number of authorities have expressed the opinion that the soil bank would indeed offer a new market for pesticides.

One of those who has commented on the program is Dr. Herbert Milliron, research specialist in entomology at the University of Delaware. He says that adoption of the soil bank plan may well mean stepping up insect control programs on farms, fields and forests. Although he is referring to his own state of Delaware, the same principle should hold true in many other areas as well.

This acceleration of insect control programs might not get into full swing the first year, he observes, but it would mean "quite a shift" on studies and surveys of insect pests sometime within the next three or four years as the soil bank plan would come into its full potential.

The reason why the soil bank would have this effect, says Dr. Milliron, is that it is likely to mean more grass and more wooded areas in rela-

tion to the amount of cropland on farms. This in turn will bring about a switch in insect pests with more emphasis necessary on control programs against pests such as armyworms, June beetles, Jap beetles, wireworms, leafhoppers, cutworms and plant bugs.

If the soil bank plan results in farmers putting more emphasis on getting some of their income from their woodlands, it may well mean that they will have to call for more surveys of forest insect pests such as moths, plant lice, boring beetles, sawflies and scale insects. Such pests are sure to cut down on woodland profits.

Crop growers will need to check their insect infestations much more carefully, he said, because cutting down the acreage of corn, for instance, may bring about a greater insect population in the acreage that's left. So it may be necessary to spray or dust the crop oftener.

Prosperity of many of the industries serving agriculture is likely to be determined, during the next few years, by the ability of various trades to adapt themselves to new circumstances. Agriculture, being in a state of transition right now, is difficult to assess accurately and to keep in the sunlight.

But the pesticide and fertilizer industries in the past have proved themselves to be adaptable and will continue to meet problems as fast as they arise.

BIOGRAPH—

Sam Gray Retires, But Interests Continue

If one of the major satisfactions of life comprises the feeling of a job well done, then Sam D. Gray should be enjoying his retirement to the full. Known variously as "Mr. Potash" and "The Old Gray Fox" as well as the "Dean of Commercial Agronomists in the Northeastern States," Mr. Gray recently completed a 20-year career with the American Potash Institute and is now taking life easy at his home in Kensington, Md.

As would be the case with anyone who has led a life as active as Sam Gray's, recollections of many problems and their solutions come to mind. His major projects for API centered around research and educational publicity, he recalls, with particular emphasis being made on the production of potatoes, tobacco, corn, fruit and grassland agriculture. "With all of these crops, significant progress has been recorded, fertilizer-wise and particularly with respect to potash usage," he says.

Much of the progress made in Mr. Gray's northeast area was accomplished through the means of demonstrations on the farm. Shortly after inaugurating a territory-wide fertilizer demonstration pasture program in 1927, Mr. Gray, accompanied by a group of county agents and fertilizer salesmen, visited one of the farms where a demonstration was being conducted. The land owner was asked to address the group and give highlights of the activity.

The informal talk made by that farmer many years ago has remained in Sam Gray's memory as a sort of turning point where the idea of pasture fertilization came into true focus. "When Mr. Gray asked to locate a demonstration on my farm, I said O.K., but told him to be blamed sure he put it on the back of the field where it can't do any harm and set my neighbors to talking," the farmer began. By this time, Sam was beginning to get uncomfortable, wondering how this "testimonial" by the farmer was going to turn out.

But the landowner went on: "Putting that demonstration on the back of the field was the worst mistake I ever made. Ever since the test

was started, those darned cows of my herd spend all their time on the back pasture and I have had a hard time getting them to the barn for milking. Now, for self-protection, I've had to fertilize the whole farm—and believe me, sir, I take off my hat to the man who got me started. Fertilizer has paid big dividends on my pastures. It will do the same on yours, too! My advice is to try it."

The day was saved and Sam Gray's conviction that pasture fertilization is profitable was established in fact.

Education is a slow process, however, and it took a lot of perseverance and patience to put over a soil fertility program in the northeastern area of the U.S. But Sam can look back on a tremendous record of progress in the 20 years that he represented the API in that territory.

A steady increase in the acceptance and use of fertilizer materials has been recorded in the northeast during the past 20 years. This is of course due to many factors, including an over-all appreciation of the economic worth of added fertility to the soil and the efforts of many persons to educate the farmers of the area to buy and apply more plant food. Naturally, Sam Gray had an important part to play in this drama.

In 1935, the year the American Potash Institute sent Sam forth to conquer, the northeastern states consumed some 965,277 tons of mixed fertilizers. In 1955, the figure had risen to 2,946,043 tons.

The consumption of potash also has shown a great increase during those 20 years, rising from 81,152 tons in 1935 to 298,734 tons in 1955; an increase of 268% in this area. Despite this tremendous progress, Mr. Gray sees further problems awaiting solution. One of these things yet to be done is that of convincing the farmer that the recommended rate of fertilization is more profitable than is the accustomed practice of "skimping" and holding back when it comes to applying optimum amounts. "This sizable and extremely

(Continued on page 23)



Croplife

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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is \$5 for one year (\$8 a year outside the U.S.). Single copy price, 25¢.

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MEETING MEMOS

March 22-23—Michigan Pest Control Operators Assn., Michigan State University, East Lansing, Mich.

March 28-30—North Central States Branch, Entomological Society of America, Purdue University Memorial Union, Lafayette, Ind.

March 30—Meeting of Louisiana Aerial Applicators, Louisiana State University, Baton Rouge.

March 30-31—Short Course in Ground Application of Agricultural Chemicals, University of Washington Campus, Seattle.

April 8-13—American Chemical Society, National Meeting, Dallas.

April 10-12—Council for Agricultural and Chemurgic Research, 21st Annual Conference; Congress Hotel, Chicago; sec., John W. Ticknor, Council for Agricultural and Chemurgic Research, 350 Fifth Ave., New York 1, N.Y.

April 16-17—Fourth Annual California Fertilizer Conference, Citrus Experiment Station, University of California, Riverside; Sidney H.

Bierly, secretary, 457 Huntington Drive, San Marino 9, Cal.

May 7-9—Carolinas-Virginia Pesticide Formulators Assn., Inc., Spring Meeting, Ocean Forest Hotel, Myrtle Beach, S.C.; W. R. Peele, 516 S. Salisbury St., Raleigh, N.C., secretary-treasurer.

May 15—Western Agricultural Chemicals Assn., Spring Meeting, Hotel Clark, Los Angeles, C. O. Barnard, 2466 Kenwood Ave., San Jose, Cal., executive secretary.

May 16-18—Synthetic Organic Chemical Manufacturers Assn., Annual Outing, Skytop, Pa.

May 20-22—42nd Mid-year Meeting, Chemical Specialties Manufacturers Assn., Drake Hotel, Chicago; H. W. Hamilton, secretary, 50 E. 41st St., New York 17.

June 10-13—National Plant Food Institute, Annual Convention, the Greenbrier, White Sulphur Springs, W. Va.

June 20-22—Northeast Branch, American Society of Agronomy,

Summer Meeting, University of Maryland, College Park, Md.

June 28-30—Association of Southern Feed & Fertilizer Control Officials, 14th Annual Convention, Hotel Roanoke, Roanoke, Va.; Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky., secretary-treasurer.

June 28-30—Seventh Regional Fertilizer Conference of the Pacific Northwest, Chinook Hotel, Yakima, Wash.

July 12—South Carolina Fertilizer Meeting, Tour of Edisto Experiment Station, Blackville, S.C.

July 19-20—Southwestern Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

July 25-27—Northwest Association of Horticulturists, Entomologists and Plant Pathologists Conference, Northwest Washington Experiment Station, Mount Vernon, Wash.

Aug. 1—Kentucky Fertilizer Conference, Guignol Theatre, University of Kentucky, Lexington, Ky.

Aug. 22-24—Beltwide Cotton Mechanization Conference, Atlanta Biltmore, Atlanta, Ga., sponsored by National Cotton Council.

Oct. 16-17—National Nitrogen Solutions Assn., Annual Meeting and Trade Show, City Auditorium, Sioux City, Iowa; John White, Auburn, Neb., secretary.

Nov. 11-13—California Fertilizer Assn., 33rd annual convention, Del Coronado Hotel, Coronado, Cal.; Sidney H. Bierly, executive secretary, 475 Huntington Drive, San Marino 9, Cal.

Nov. 19-20—Eastern Branch, Entomological Society of America, Hotel Haddon Hall, Atlantic City, N.J.; B. F. Driggers, Rutgers University, New Brunswick, N.J., secretary.

Classified Ads

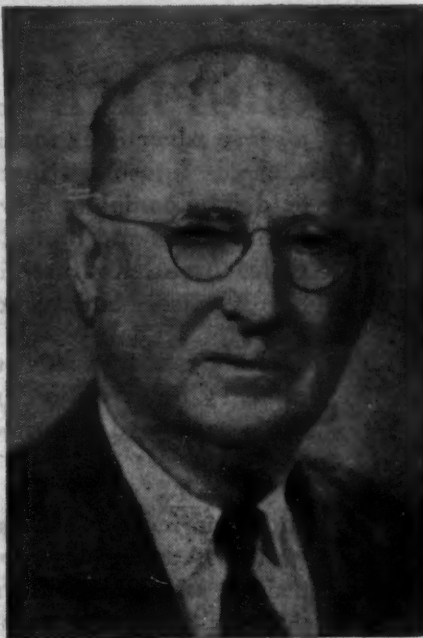
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All Want Ads cash with order.

SAM GRAY

(Continued from page 22)



Sam D. Gray

important task is best expedited through the device of demonstration," he observes. "It is a never-ending task."

Well-known throughout the fertilizer industry, not only in the north-eastern states, Mr. Gray has participated in activities representing all parts of the country. He holds memberships in the American Society of Agronomy, the Soil Science Society of America, the American Society of Agricultural Engineers, the National Geographic Society, and the American Association for the Advancement of Science. He was a Fellow of the ASA in 1954 and also a Fellow of the AAAS back in 1933.

His association with the fertilizer industry has been prominent, too. He was a member of the National Joint Committee on Fertilizer Application, serving as vice chairman from 1942-45 and as general chairman in 1953.

He was for fifteen years a member of the Plant Food Research Committee of the National Fertilizer Assn.; a consultant in agronomy to the Pennsylvania Cooperative Potato Growers' Assn. from 1938-50, and chairman of the Northeast Tours Committee of the 6th International Grassland Congress in 1952.

Mr. Gray has also contributed to numerous publications in the technical field as well as to the farm press.

In retirement, Sam now expects to devote a lot of time to interests he has had all through the years . . . to do an abundance of reading, and to maintain his contact with his many friends throughout the entire fertilizer trade.

His career of achievement can probably be summed up by a notation appearing on a personal data sheet covering the statistical side of his work: "Above all, however, the achievements of this man can best be measured by his interest in fundamental research which he never hesitates to project whenever he finds an intelligent audience."

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General Chemical Division, Allied Chemical & Dye Corp.	Spencer Chemical Co.
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Grace Chemical Co.	Stewart-Warner Corp.
Grand River Chemical Div., Deere & Co.	Stoker, H. S., Co.
Hahn, Inc.	Successful Farming
Hammond Bag & Paper Co.	Tennessee Corp.
Henderson Mfg. Co.	Thomas Alabama Kaolin Co., The
Hercules Powder Co.	Thompson-Hayward Chemical Co.
Highway Equipment Co.	Umhaugh Agricultural Chemical Co.
Hopch, Frank H., Co.	Union Bag and Paper Corp.
Hypro Engineering, Inc.	United Petroleum Gas Co.
International Minerals & Chemical Corp.	U. S. Phosphoric Products Division, Tennessee Corp.
International Paper Co., Baggpak Div.	U. S. Potash Co.
Jahs-Manville Corp.	U. S. Rubber Co., Naugatuck Chem. Div.
J. I. H. Corporation, The	U. S. Steel Corp.
Kelly Ryan Equipment Co.	Valiscol Chemical Corp.
Kellogg Chemical Corp.	Virginia-Carolina Chemical Corp.
	Vulcan Containers, Inc.
	Vulcan Steel Container Co.
	Woodbury Chemical Co.

OKLAHOMA

(Continued from page 6)

Trade Assn., Chicago, Ill., lauded meetings such as the Crops, Soils and Fertilizers conference. He said they create better working relationships by effecting a better coordinated effort on research projects, by providing a forum for exchange of information on techniques, and in many instances giving commercial and agricultural leaders a new insight into the farmer's attitudes and needs.

He said we need a better understanding of the problems in production, processing and distribution of farm products in order to increase efficiency in agriculture. Outlining recent changes on the national agricultural scene he described today's farmer as increasingly "quality and scientific-minded."

Pointing out the need for increased research, Mr. Huey said as an industry agriculture spends far less man power and money for research on problems related to plant breeding, cultural practices and soils on the basis of gross dollar income than any industry in America.

"Important discoveries are available immediately to all who will listen and read," he stated. "We are partners in a 163 billion dollar business, the value the U.S. Department of Agriculture places on our land, farm buildings, livestock, machinery, equipment and liquid reserves."

"The people buying seeds, fertilizers and supplies to operate a farm unit are well informed people. Today as never before industry and research have a common bond. Our free enterprise system finds fullest expression and succeeds best when each of us supplies a building block of experience. All are served best when a new discovery finds its way through practical application into a position of being useful in some segment of the economy."

A NEW SERVICE for Advertisers and Agencies...

CROPLIFE does more than offer the only *weekly* advertising medium to advertisers and advertising agencies interested in reaching the agricultural chemical field. The complete services of Croplife's Home Office in Minneapolis and its full-time branch offices in New York, Chicago and Kansas City are available for the servicing of advertisers and agencies.

Requests for market information, statistical analyses, industry news tie-ins and other service will be handled by experienced full-time staff members of the company.

Working under the direction of Croplife's seasoned and experienced editors in the Minneapolis Home Office is the Advertiser Service Department, headed by a trained statistician and market research man who directs the work of a library and research staff of five persons.

Croplife's advertising sales staff includes full-time staff members in each branch office, with several years of experience in businesspaper advertising, whose first objective is to be of service to advertisers and agencies interested in the field served by Croplife. These repre-

sentatives know agriculture thoroughly and their experience in industries and organizations serving the agricultural field qualifies them highly for their advertising sales and service assignments. Included in this wealth of experience are previous assignments with agricultural experiment stations, the United States Department of Agriculture and daily and weekly newspaper work in agricultural communities.

In the nation's capital, Croplife has its own Washington correspondent, a veteran capital newsman who interprets the Washington scene in terms of short and long range impact on the industry. In looking behind the government news releases, he is able to report valuable information on trends and significant behind-the-scenes activities.

Croplife's foreign manager is alert to overseas developments of interest to the agricultural chemical industry and handles requests from advertisers and agencies for information and service on the foreign market.

Advertisers and advertising agencies interested in the agricultural chemical industry are invited to make use of this advertiser service program.

WRITE—WIRE—PHONE our nearest office for the complete story of how Croplife and its complete staff and facilities can be of service to you in planning and producing your advertising to the agricultural chemical industry.



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